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## LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interests of Lake Carriers, and to improve the character of the service rendered to the public.

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## ACCURATE TIME KEEPING BY CLOCKS.

In Science for February 7, Milton Updegraff, of the United States Naval Observatory, has a very interesting article entitled "On the Measurement of Time," in which he recites the great importance of means of keeping accurate time for astronomical work, and says:

"It may perhaps be stated in general, without serious danger of dispute, that the pendulum clock is the most accurate and reliable of all types of time-keeping mechanism. Chronometers have the advantage of portability and often run remarkably well for considerable periods of time, but they do not compete with the pendulum clock in carrying an even rate during a series of months or years.

"The first successful attempt to mount a clock in an air-tight case seems to have been made by Tiede, of Berlin, who in 1865 installed for Professor Foerster in the basement of the Berlin Observatory an electric clock in an air-tight glass cylinder. This clock, the escapement of which is a very simple piece of mechanism, is described by Professor Foerster in the Astronomische Nachrichten, Nr. 1636. The impulses given to the pendulum are independent of the strength of the current since they are produced by the falling of weights which are lifted each second by an electro-magnet. The reason for adopting the electric clock was that the winding of a clock run by weights is attended by difficulties when the clock is enclosed in an air-tight case. While this clock does not run under ideal conditions, being subject to a gradual change of temperature and a consequent slight variation of barometric pressure during the year, it is probably the best time-keeper in the world. It has frequently run for periods of two or three months with such accuracy that the average deviation of the mean daily rates for the whole period is only 0.015 second and with a maximum deviation of 0.03 seconds, the clock was dismounted for cleaning in 1894 after running continuously for eight years. The pressure of the air in the case has been kept below the normal atmospheric pressure, and mention is made of the pressure having been made at one time as low as 180 millimeters, about 7 inches. Little difficulty seems to have been found in keeping the cylinder air-tight. Indeed, a slight progressive diminution of the pressure in the cylinder has been observed, and is attributed by Professor Foerster to oxidation of the metal parts of the clock and to absorption by the glass walls of the cylinder of particles of moisture from the air within. This clock has been for thirty-six years the normal clock of the Berlin Observatory.

"The standard clock of the Greenwich Observatory by Dent, of London, is mounted in the basement of the observatory, where the temperature changes are small and very gradual, and is fitted with an electrical device for barometric compensation.

"The standard clock of the Paris Observatory, by Winnerl, enjoys the unique distinction of being mounted in a vault at a depth of 27 meters underground. The temperature changes at that depth are of course very small, being, according to Tisserand, not more than one or two hundredths of a degree during the year, but the effect of barometric changes on the rate of the clock has been found to be serious."

## LIQUID FUEL TESTS.

A liquid fuel burner, which has been introduced by the Hydroleum Co., limited High Holborn, London, England, is described in Engineering, London. It consists of two concentric cylindrical chambers with nozzel shaped ends, and a long taper rod coaxial with the chambers. This is moved backward and forward by means of a disk wheel at the back and a screw which is inside the feeder and thus acts as a finely adjustable valve controlling the flow of liquid fuel. Steam at pressure passes into the annular chamber formed by the two concentric cylinders, and issues in an annular jet from the nozzle.

The oil is contained in the inner chamber, and as it flows out around the central rod, it also is in the form of an annular stream. In this way the steam is made to surround the oil as the two emerge from the nozzle.

The jet is confined within a small firebrick chamber and impinges on a firebrick placed at a suitable distance from the nozzle. The annular formation of the jet is broken up and combustion takes place.

The liquid fuel is drawn through the nozzle by the escaping steam. A record was given of two tests on a 50 horse-power Nornsby water-tube boiler in which three burners were installed to overcome the emission of smoke which attended the use of coal.

Test 1 was made with coke at $5.25 per ton; test 2, with the liquid fuel, which was water-gas tar, at $4.57 per ton.

In the former the equivalent evaporation was 6.73 pounds of water per pound of coke; in the latter, 13.47 pounds per pound of tar.

## FUTURE COAL CONSUMPSION.

WHAT is to be the future coal consumption of the world? This question is worth some consideration. If we are to judge by the development of the immediate past, it must in this century assume such colossal proportions as very few now dream of. The total output of coal in the world in 1883 was only about 385,000,000 tons, but in 1900 it had increased to about 760,000,000 tons, so that there was an increase in this interval of 375,000,000 tons, or about 82 per cent. If in the next forty years this rate of increase is maintained, the world's coal consumption in 1904 should be something like 1,400,000,000 tons, or nearly double the present colossal figures. Should this result actually come about, whence are the new coal supplies to be obtained? "How far can the United Kingdom go in the direction of providing for the increase of demand?" asks the London Iron and Coal Trades Review. "Is it not almost inevitable," queries our contemporary, "that Great Britain must be content in the future to play a more subordinate part in the great business of supplying the world with coal? Is it not more than probable that the United States, Russia, China, Canada and the Australasian colonies must inevitable come much more prominently to the front as sources of supply? Is it not even probable that when Great Britain has tapped all the available sources of supply there will be a danger of periodical famine conditions, induced by such potent influences as those which, during the last three years, have led to an increased output of nearly 110,000,000 tons a year by three countries alone—Germany, Great Britain and the United States?"

A SHOWER of a remarkable character occurred in Sicily on April 24, 1781. On the morning of that day every exposed place within an extensive district was found covered with a gray water which, being evaporated, left a deposit nearly a quarter of an inch in thickness. It was determined that this solid matter must have come from Mount Etna. It is certain that vast quantities of solid substances are constantly afloat in the atmosphere. The sunsets all over the world are redder to this day on account of the dust from the mighty eruption in the strait of Sunda years ago, which has not yet entirely settled.

## INTERNATIONAL MARITIME CONFERENCE.

The International Conference for the Unification of Maritime Law, will be held in Hamburg on Septemeber 25, 26, and 27 next, in continuation of the International meetings held in 1898 in Antwerp, 1899 in London, and 1900 in Paris. The foreign members will be guests of the Hamburg Senate and of the German Association of Maritime Law, which is under the presidency of Dr. F. Sieveking, the well known president of the Hanseatic Court of Appeal. The foremost subject on the agenda paper will be the definite adoption of an International Code on the Laws of Collision at Sea and Salvage. This code embodies the various principles which have been debated and carried at the former meetings, and relates, for instance, to such matters as collisions where both ships are to blame, compulsory pilotage, respective liability of tug and tow, obligation to stand by, and various other points of practical importance on which the laws of nations very widely differ at the present day, and which it is desired to bring under one uniform set of rules.

The draft of this International Code has been prepared by a committee under the presidency of Lord Alverstone, Lord Chief Justice of England, in accordance with the resolutions of the former international meetings, and will now be submitted to the Conference at Hamburg.

After passing this meeting, it is expected that the Governments will be approached in order that the matter be referred to a diplomatic conference. The other points to be dealt with are the laws as to jurisdiction in collision cases, and the divergencies between existing laws as to mortgage, privileges in ships, and the rights "in rem." Amongst others, Lord Alverstone, Mr. Justice Phillimore, Sir John Glover, Mr. Charles MacArthur, M. P., Dr. Stubbs, Mr. Douglas Owen, Mr. Stanley Mitcalf, Prof. Lyon-Caen (of the Institute of France), Minister Beernaert (Brussels), late Minister Boseli (Rome), Senator Rahusen (Amsterdam), Mr. Le Jeune and Mr. Louis Franck (Antwerp), Mr. Clunet (Paris), Mr. Musnier (Messageries Maritimes, Paris), Mr. Autran (Marseilles), Prof. Platou (Christiania), Mr. Hindenburg (Copenhagen), and Mr. de Gunther (Stockholm), are expected to be present. On the German committee we note the names of Dr. F. Sieveking, Mr. A. Duncker, president of the Hamburg Committee of Underwriters, Mr. Woermann, president of the Hamburg Chamber of Commerce, Dr. Wiegandt (North German Lloyd), and many other prominent men in the German maritime circles. The conference is organized by the "International Maritime Committee;" and the preliminary reports and papers and any further information may be obtained, we understand, on written application being made to the honorary secretary of the International Maritime Committee at Antwerp.

## SPRING TIME.

Friday last was the first day of spring. The 21st of March is considered the beginning of spring. If a line is drawn through the sun at right angles to the solsticial line, it will intersect the earth's orbit at two points, and while the earth is occupying either of these points the twilight circle passes through the poles, and the days and nights are of equal length. These points are called the vernal and autumnal equinoxes and are passed March 21 and Sept. 22. Common custom, then, has termed March 21 the first day of spring and Sept. 22 the first day of fall or autumn.

The length of days will increase steadily from now on until June 21, which will be the longest day of the year, the earth being at a place in its orbit termed the summer solstice. The longest day possible in this latitude is of about 15 hours' duration.

As a result of a wager a man recently traveled from Kansas City to Chicago billed as a sack of potatoes. Three and one-half days were required for the trip, during which time 700 miles were covered. The journey was begun with only a quart of water and two pounds of crackers, that being a condition of the wager. The cask of water was spilled the first day of the journey, and but for a leaky roof which permitted the water of a rain storm to drip on the sack the man would have suffered very seriously from thirst. When released at Chicago his throat and mouth were so parched that it was almost impossible to speak.

## DETROIT.

*Special Correspondence to The Marine Record:*

Sidney Bickford, for the last five years general agent of the White Star line, of Detroit, has been appointed general agent of the Algoma Central Steamship Co., with headquarters at Detroit

A special dispatch from Washington says that the Senate yesterday passed Senator McMillan's bill providing for the establishment of a life-saving station near Eagle Harbor, Keweenaw Point. For many years there has been an urgent demand for a station at this point, which is near where the steamer Hudson and her entire crew were lost last September.

The Bay City longshoremen's union has fixed a scale for the present season. They will charge 50 cents an hour, with 10 cents an hour additional for overtime. A member of the union says its membership has dwindled from 800 a few years ago to about 100, on account of the loss of the lumber trade. The principal work done by the union is the unloading of lumber laden craft which come here from Canada and Lake Superior ports.

A dispatch from Sault Ste. Marie says it is a settled fact that the tug trust will have strong opposition there this season with Capt. R. P. Thompson, for several seasons local manager for the "G." tugs at that port, in charge of the opposition fleet. If a statement recently given out that the tug trust lost $10,000 on its "Soo" business last season is correct, then the proposed opposition will in all probability prove an expensive matter all around.

The reports from the regular and display stations of the weather bureau on the lakes indicate that there has been steady decrease in the ice conditions during the latter part of the week, and that the cold weather of the fore part of the week has been nearly offset. The present indications are that the ice at the Straits of Mackinac will break up between April 5 and 10, and the St. Mary's river can be opened up by April 10 if the present warm weather continues.

The meeting between President Livingstone and Secretary Brown, of the Lake Carriers' Association and the Clergue interests, representing the "Soo" power canal, will be held in Washington some time during the latter part of this week. The Lake Carriers are going to oppose the canal, but Mr. Clergue's interests will be represented at the time the matter is taken up before Congress, and will endeavor to show that the power canal will not lower the lake levels nor interfere in any way with the safe navigation of the lakes.

The steamer Arundell left on Monday morning, on the first trip of the season from Detroit to Port Huron. She will make a round trip every day until business demands the addition of a larger steamer. On Sunday, a run was made to Algonac, and about 150 people, mostly Flats cottagers, took advantage of the early opening of the up-river route to inspect thier property. Stops were made at the Old Club, Rushmere, Mervue, Star Island House, Marshland, Riverside, Damer's, Trautz's, Joe Bedore's and other private and public landings, including Grande Pointe. The only ice seen was a little at the piers at the ship canal, where a stop was made to land the light-keeper.

Work on the canals at the Sault Ste. Marie preparatory to the opening of navigation has been commenced. Capt. Ripley is of the opinion that there will be an early opening this year. With the exception of about a month the canal force has been kept busy during the winter and there has been a large amount of work done. The hydraulic machinery has all been thoroughly overhauled and many improvements and changes made. Mr. Ripley is pleased at the action of the Rivers and Harbors Committee in recommending four million for the West Neebish channel, the full amount recommended. It is not likely that the appropriation will be available for use this year, as the appropriation bill is usually the last to be passed. If there is an early adjournment of Congress it might be possible to get the work under way this fall, but this is doubtful. No attempt was made to get into the appropriation the sum of $1,750,000 for deepening the St. Mary's river to 21 feet, the amount estimated for the work. This improvement is not necessary until the completion of the West Neebish channel, and there will be no difficulty in getting the appropriation for the purpose when needed. The project of widening the canal is another matter that will be brought to the attention of Congress at this session. It is not necessary for an appropriation to start the work, as there is some money on hand. All that is necessary is to authorize it.

## CHICAGO.

*Special Correspondence to The Marine Record.*

Capt. Dennis Sullivan will manage the steamers W. H. Wolf and Fred Pabst this season.

steamers Mercur and Packer, owned and operated by the company, will probably be put on the run between Escanaba and Lake Erie ports, and sold later.

A new lake line between Kenosha and Chicago is being planned, to take the place of the service formerly furnished by the Barry line. Capt. Crosby, who has been in command of the steamer C. H. Starke, will have charge of the line, and it is stated that he has Detroit capital benind him.

The following meteorological observations are furnished by the office of the U. S. Weather Bureau, Chicago for the week ending noon, March 26. Prevailing wind directions for the week northeast; highest velocity 37 miles, from the east on the 25th; mean temperature for the week, 40; highest temperature, 47 on the 25th; lowest, 35 on the 20th.

One line has announced a reduction in its fare from Chicago to Grand Haven of 50 per cent. By the new tariff the fare will be $1 each way, as compared with $2.25 for many years past. This makes the lake and rail rate to Grand Rapids $1.50, said to be about the cheapest transportation in the United States.

Marine insurance will run on for another year on substantially the same lines as last season. The rates will be the same, the policy is practically the same, and there will be no change in the companies or in the combinations which ruled in 1901. The only material difference will be a greater difficulty in securing insurance on low grade vessels.

There was practically nothing doing in grain charters yesterday. Not even the usual amount of figuring between shippers and vessel agents occurred, and it seems that last week spent the force of business in early grain charters. Rates are nominally 1¾ cents on wheat to Lake Erie. There is little or no cash business, and very little grain is being worked here for export.

With every boat which wintered in Chicago empty of grain cargoes except one, shippers offered but 1½ cents on corn to Buffalo, to go at the opening of navigation. Even at that rate there was but one small cargo on the market. So far as known, vesselmen did not take it, owners preferring not to have their boats tied up at all to taking grain at so low a figure to open the season.

Capt. John Cullnan, for many years master of the tug J. T. Morford here, will be sent to Lake Superior the coming season as local manager of the tug trust fleet at either Ashland or Marquette. Capt. Cullnan has had the reputation of being the best tugman in Chicago, if not on the entire chain of lakes, and his promotion has been warmly welcomed by shipmasters and vessel owners.

A wireless telegraph system, giving connection between vessels in midlake and the mainland, may soon be an appliance on lake-going steamers. The managers of one of the companies are considering the fitting of all boats, passenger and freight, with sending and receiving stations of the Marconi pattern. With this in view, they will make tests of the system within a few weeks. Discussion of the plans has been going on for some time. Officials have become convinced of the value of the contrivance. If the tests are successful the boats probably will be equipped with telegraph stations before summer navigation season is well under way.

The steamer Luzon, owned by E. D. Carter, of Erie, will be launched at the yards of the Chicago Ship Building Co., at South Chicago, next Saturday. The Luzon is a steel steamer, 366 feet long over all, with 48 feet beam and 28 feet depth of hold. Her carrying capacity measures 5,000 gross tons of iron ore. John Prindiville & Sons have chartered her for the season to the Algoma Central Co. They have also placed the steel steamer Panay, 5,500 tons' capacity, launched recently at South Chicago, with the same interests. Both boats will be used in the iron ore trade between Michipicoten, Ont., and Ohio ports. The Luzon will be ready to go into commission about April 25.

S. J. Dunkley, the wealthy fruit shipper, of Kalamazoo, Mich., and owner of the Dunkley Transportation Co., has bought out the Williams Transportation Co., and the steamer City of Kalamazoo, Glenn and H. W. Williams. The purchase, according to advices, is backed by the Michigan Central railroad. What effect this will have upon the future of the steamer Darius Cole, which is now the property of the Star-Cole Co., is not known, but Mr. Dunkley was instrumental in clearing up the difficulty between the Williams Co. and the Star-Cole Co., so that by returning the outstanding notes to the Williams Co., the former owners come into possession of her, and it has been announced that while her future has not been decided, she will be sent back to Detroit next June.

The drainage trustees have lost another suit in the United States District Court, wherein Judge Kohlsaat held they were at fault in blockading the navigable channel of the Chicago river. It was what is known as the Amazon case, where that boat got stuck in the railroad bridge at Taylor street. James Corrigan, the owner, sued the drainage district for damages aggregating $4,000 on the grounds that the district had not maintained a channel required by the War Department. Damages amounting to some $3,500 were awarded. With the three suits decided against the drainage district in the United States District Court, vesselmen say that they need have no longer much fear about obstruction in the south branch. The amounts awarded in all three cases fully cover damages and lost time.

The Indiana Steamship Co., capital $70,000, and the Chicago Steamship Co., capital $80,000 have been incorporated under the laws of Indiana. The former company will operate the steamer Black Rock, and the latter the City of London. The object of the incorporation under the Indiana laws is to escape high taxation in Illinois. Under the law put through the Indiana Legislature last winter, largely through the efforts of Capt. J. G. Keith, of this city, vessels hailing from that state pay a tonnage tax of only 3c per ton. Directors of the company owning the Black Rock are: William Anderson, William G. Keith, Robert J. Dunham, Thomas J. Johnson, and J. F. Gallagher. The directors owning the City of London are: William Anderson, William G. Keith, Robert J. Dunham, George E.Marcy, and J. F Gallaher. All are Chicago residents.

The Iroquois Iron Co., of South Chicago, which received 200,000 tons of ore last season, has increased its capacity fully one-third. To provide this increase the company has chartered the steel steamers Kennebec and Kanawha. The latter is now nearing completion at Port Huron. The

The Northern Steamship Co. has taken advantage of the consolidation of the Dunkley and Williams lines by acquiring the dock property and offices of the former company, for a landing place for its two big steamers next summer. Since being frozen out of their last season's dockage by the Manitou people, the Northern line has canvassed the available dockage in the Chicago river without much success until the present opportunity presented itself. The new dock is just through Rush street bridge, and but a few hundred feet away from the wharf used by the line last summer. The Dunkley line has not yet abandoned the offices, but will move into those now occupied by the Williams line before the opening of the season.

Holders of more than two-thirds of the capital stock of the Graham & Morton Trnsportation Co. have expressed a desire to abandon the corporate enterprise, surrender their Illinois charter, franchises and corporate name, and dissolve the corporation, and have submitted this desire in writing to the company. A stockholders' meeting has been called for March 29, in the offices at Chicago, at which time this decision will be ratified by vote. President J. H. Graham, of the company, said: "The action simply means that our twenty-five year franchise in Illinois expires next December, and that we have decided to reorganize under the laws of Indiana. The reasons for this change I cannot make public until after our meeting next week. The capitalization in Indiana will be the same as in Illinois, or $50,000. This is merely nominal, or 3 cents per ton on the tonnage of the boats employed by the company. There will be no change whatever in the officers, owners or management." The present officers are: J. H. Graham, president, and J. S. Norton vice president and secretary. The directors are these two and Theodore C. Keller, who represents the heirs of Andrew Crawford, a former large owner of stock of the company. The Graham & Morton Co. last year operated six passenger and freight steamers between St. Joseph, Benton Harbor, Saugatuck, Holland and Chicago. This year the company has added an additional steamer, the C. W. Moore, to its fleet, and has already put the latter boat in operation between Chicago and St. Joseph. The company's regular spring passenger schedule goes into effect next Saturday.

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One of the choicest bits of sea narrative that has floated in on the tide lately is the new novel entitled "A Lady Skipper." The author is Capt. W. J. Ward, of the staff of the Syren and Shippng, the well known maritime journal of London. "A Lady Skipper" tells in a fascinating and shipshape way the story of a young woman, Cissy Marshall, who dons the togs of her deceased twin brother, and ships on his papers, under his name, of course, as Capt. Conrad Marshall. Cissy had acquired sufficient knowledge of the sea to make this deception not only possible, but easy and so the skipperess in trousers, in due course found herself in command of a deep sea vessel. With that sufficient basis an admirable story is built up, full of action and color of the sea. There have been but few nautical romances that have been more happily handled. "A Lady Skipper" is nautical but nice. Only that she falls away and marries her second mate after the voyage is over. We recommend the story to our readers.

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The Canadian Pacific has decided to increase its elevator capacity at Fort William from 5,550,000 bushels to 8,000,000 or 10,000,000 bushels. At present there can be put away in the company's four elevators at Fort William 5,550,000 bushels, and to this capacity it is proposed to add the cleaning elevator 1,000,000 bushels, the addition to the steel tank elevator B, 1,500,000 and are annex to elevators B 2,000,000, which will bring up the total capacity at Fort William to 100,000,0000 bushels.

## DULUTH-SUPERIOR.

*Special Correspondence to The Marine Record.*

There is nothing new to announce about the Lake Michigan & Lake Superior line, except that the old boats have been more thoroughly overhauled than they have been for years, and that they will go into commission this spring in the best possible condition that vessels of this class can be put in. They will go in commission April 25.

The opening of navigation will find about 1,500,000 tons of iron in stock at the various mines on the Gogebic range. Never have more men been employed in this district, and operations at all properties have been pushed with great vigor. Several mines will begin shipping this season and increased outputs are expected at others as a result of opening new shafts.

Capt. B. F. Howard, who was a delegate form Duluth Harbor No. 44, Masters' and Pilots' Association, to the annual meeting of the association in Detroit, returned this week. He says that all of the harbors on the chain of lakes were represented by delegates and that a very interesting meeting was had. Capt. Howard will make a report to the local harbor regarding the steps taken at the annual meeting.

Bamlet Kent, in charge of the government engineer's office at Houghton during the absence of Major Marr, who is abroad, reports that the ice on Portage Lake is very treacherous at present. Especially is this so where there is dockage or piles are driven. Mr. Kent, who is engaged at present taking soundings through the ice for use in making a correct map of the lake frontage, says that the ice is so rotten in places that the ice drilling machine is not used and a common chisel answers the purpose.

Capt. W. H. Singer, manager of the White Line, has returned to Duluth and eastern points, where he closed a deal for the purchase of the steamer Iroquois, for the Lake Superior service. Capt. Singer annonuces that the boats are now being fitted out and he hopes that they will be able to effect a passage through the ice of Portage Lake by April first. The steamers Mabel Bradshaw and the Bon Ami will go into commission in a few days, and until the lake here is opened up will ply between north shore points.

The shipping of iron ore from the mines to the docks at the head of the lakes, Duluth, Superior and Two Harbors, will, it is expected, begin about the 20th inst. If the present fine weather continues, the shipments will begin not later than the last week of March. There is now every indication of an unusually early opening of navigation. A few days more of weather similar to that of last week will dispel all doubt. Boats could now get in and out of Duluth harbor, and there has not been two weeks altogether this winter when they could not. Had emergency demanded it, the boats could have gone in and out almost every day this winter

The Booth line is making preparations for the coming season of navigation at Duluth. During the early part of the season it will run the steel passenger steamer Argo on the south shore route between Duluth and Houghton, twice a week, Tuesdays and Fridays. Beginning June 15 and continuing until September 15, the Argo will leave Houghton every Friday morning for Isle Royale, returning in the evening. Views and descriptive matter have been distributed broadcast throughout the country, calling attention to the beauties and attractions of Isle Royale and directing the attention of tourists to Houghton, whence the steamer Argo will take them to the island.

Capt. D. D. Gaillard, of the United States Engineer Corps, visited Houghton recently with reference to the proposed improvements in the draw bridge across the Portage Lake Canal at that place. The draw is only 64 feet wide, but plans have been prepared by the commissioners of Houghton county providing for two draws, one 115 and the other 108 feet wide, and the proposed improvement has been approved by the Secretary of War. There are vessels in the Lake Superior trade of 52 feet beam, and with a draw only 64 feet wide the bridge was becoming an obstruction to navigation, or, at least, rendering navigation at that paint somewhat hazardous. The narrowest draw at the head of the lakes is 100 feet.

The Northwestern Fuel Co. are arranging to put in an Ottumwa box car loader at their No. 1 docks at West Superior, to be used in loading box cars. This is the first box car loader to be installed for dock use, and the Northwestern Fuel Co. is to be commended for their enterprise. The loader will be mounted on a car built especially for the purpose, and the equipment will consist of the loader with boiler, and engines, and machinery for moving the car quickly to the different loadng places on any part of the dock. It is expected that this will greatly lessen the cost of loading box cars, and also increase the handling capacity of the docks. Aside from all this, the coal will be loaded into box cars in much better condition. When dock No. 1 is equipped with all the labor-saving machinery, it is expected it will be one of the most complete and up-to-date docks to be found.

The Duluth and Northern Minnesota road, the logging railway corporation of Alger, Smith & Co., will enter Duluth over its own tracks. At present the road connects with the Duluth & Iron Range at Knife river, and the latter's tracks are used into Duluth. Engineers have located a line from one of the logging stations west of Knife river to Duluth, and an extension of 20 miles will be built in order to reach this city, where the sawmill of Alger, Smith & Co. is situated on Rice's Point. The Duluth & Northern Minnesota road has asked to raise its capital stock from $200,000, the present amount, to $1,000,000. The increase is for the purpose of making the extension. The line is standard guage, and the road is well ballasted and otherwise equipped. It is believed that the road will ultimately be a new line to the iron region. The road now extends well up into the lake country.

## BUFFALO.

*Special Correspondence to The Marine Record:*

The Senate Committee on Commerce Thursday last authorized favorable reports on the two House bills authorizing the construction of marine hospitals at Buffalo, N. Y., and Pittsburg, Pa.

The suit of the Huron Barge Co. against the Northern Steamship Co. for $125,000 damages on account of the loss of the Sagamore on Lake Superior last summer, will soon be placed on trial here. The Sagamore and several members of her crew were lost in collision when the Northern Queen ran into her during a heavy fog above the "Soo."

Buffalo lake line managers held a meeting in the office of C. C. McCain, commissioner, and for nearly two hours discussed the question of fixing a date for the general start for the package freight or railroad line boats. When the conference was concluded it was announced that no decision had been reached, but that the settlement of the matter had been deferred for several days.

It is reported that there is ice almost continuously from Ashtabula down, something more than 100 miles. Reports from Port Colbourne are that all is solid there yet. There is a move to form an agreement among the package freight lines not to sail before April 20, but some of the managers are against signing such an agreement now, as they say if the ice should go in a few days it might be very desirable to sail sooner than the 20th and then there would be no freight ready.

The contract for buildnig three lighthouses and one fog signal station on the new north and south breakwaters at Buffalo, will probably go to the Buffalo Dredging Co., on its bid of $28,000. The contract for removing the wreck of the steamer Governor Cushman, which is sunk near the Reading coal dock, will be awarded to William Hingston. His bid was $3,500. Major Thomas W. Symons, United States Engineer, has recommended that the work be done by these contractors.

The Northern line has definitely announced that it will not attempt to maintain a service the coming season on Lake Superior to connect with its steamers at Mackinaw island. Last season the Miami was brought from the coast and put on the run, but this year it will be left to the regular lines running between Duluth and lower lake ports.

At Tonawanda some lumber boats have been chartered at $2.50 a thousand, but Buffalo boats so far engaged have made contracts at going rates at the opening of navigation.

No agreement has yet been reached between the lumbermen and the lumber unloaders at this port Vesselmen claim they are discriminated against in unloading charges, and they are making an effort to secure a rate more equitable. Last season the rate at Tonawanda was made on a basis of 30 cents per 1,000 on pine and 40 cents per 1,000 on hardwood lumber. At Buffalo the rate was on a basis of 36 cents for pine and 60 for hardwood. In addition, 2 cents per 1,000 more was paid here than in Tonawanda for straightening the lumber after unloading.

The passenger steamer Lakeside, owned and operated by the Niagara, St. Catherines & Toronto Railway Co., in connection with their railway line between Niagara Falls, N. Y., and St, Catherines, has been entirely refitted this winter at the company's wharf at Port Dalhousie. Many improvements have been made in the boat to further insure the comfort of the passengers. The Lakeside has the reputation of being the staunchest boat on Lake Ontario in the passenger service. It has held the reputation for some years of being the first out in the spring and the last in the fall. This year the company proposes to open up its Toronto route about the first week in April.

The marine engineers have won their strike against the Rutland Transit Co., which operates eight steamers. The Engineers' Association demanded union wages and an oiler on each steamer last season. On being refused, all the engineers and firemen were ordered ashore. The engineers left the union, and returned to the work, but the fight continued at lake ports throughout the season. This winter the engineers returned to the union and renewed their demand. They sent for a final answer, and the new manager of the line granted the demand. Similar action was taken against the George Hall Coal Company's fleet and the Ogdensburg Coal and Towing Co., operating to Montreal.

Capt. Baker, of Detroit, was here en route to the steamer Mark Hopkins, which he bought last fall as she lies in the sand on the Canada shore above Long Point. He can get only as far as Port Burwell by rail and then must take a thirty-mile ride along the beach close to the water. Often the lake is so rough that the drivers refuse to make the trip. Capt. Baker appears to be very sanguine of getting the Hopkins into deep water in the spring, and is putting considerable new work on her, but old vesselmen shake their heads over the problem. They say she is so far from deep water now that it will be hard to drag her in between storms, and when one comes up it will shove her out on the beach again. "You will do well to predict that she will never be afloat again," said an experienced vessel owner, "and then you will come out as a prophet, for I am satisfied it is a hopeless case. I have had experience in these undertakings."

Official notice has been sent out of the appointment of Gibson L. Douglass, Jr., agent of the Western Transit Co., at Duluth, in place of A. B. Wolvin, resigned. Gibson L. Douglass, Jr., was born in Troy, N. Y., and began his experience in the freight traffic business as errand boy in the New York office of the Western Transit Co. After some years' service he resigned to engage in other business. His association with the line was resumed in 1897, when he was made traveling freight agent of the New York Central, having territory on the main line between Rochester and Buffalo, on the Falls branch, the Rome, Watertown & Odgensburg west of Rochester, and the Pittsburg and Youngstown districts. This position he later resigned to become secretary to the general manager, in which position he remained until the spring of 1901, when he went to Duluth, in the employ of Capt. A. B. Wolvin, who at that time added to his management of the steel fleet and many other enterprises, the agency of the Western Transit Co. at that port.

Two important meetings are to be held in Buffalo this week, and the result of these sessions may have an influence on the date of the line boats starting out. On Thursday there will be a conference of the lake and rail interests, representing the Western Trunk Line Association and the lake lines, for the purpose of establishing divisions on west-bound freight. This is identical with the conference recently held in Chicago at which no agreement was reached. On Friday a meeting of the trunk lines, Central Freight Association, the Western Trunk Line Association, and the lake lines representatives will be held to consider the propriety of reducing lake differentials on east-bound flour and grain products. The present differential is 3 cents, and the railroads claim the discrimination against them is too heavy. Some of the rail line managers claim that 2 cents would be a sufficient differential, and would put the lake and rail lines on a more equal basis. There will doubtless be strong opposition to the reduction, however, on the part of the vesselmen.

## FLOTSAM, JETSAM AND LAGAN.

James M. Reed, of Toledo, has sold the steamer C. Hickox, to Belknap & Phillips, for about $7,000. The purchasers own a brickyard at St. Clair, Mich., and will put the Hickox in the brick carrying trade.

The contract for the keeping of the buoys in Portage Lake and river in place has been awarded to Peter Gagnon, of Houghton. It will be the duty of Mr. Gagnon to take care of the buovs during the season of navigation and see that they are in good shape.

James H. Countryman, who was in the Crescent Transportation Co. on the John N. Moran, lost about four years ago, is now enquired after by his sister Gertrude, Hannibal, N. Y. Anyone knowing anything regarding the matter would confer a favor by addressing his sister or the RECORD.

It is expected now that the Cleveland & Toledo line will run its first boat for the season between the two cities about April 1. The officers have gone to Detroit to take charge of their boats and will bring them down here in a few days. The Detroit boats will be running on regular schedule by Monday, and the Toledo boats probably within another week.

A company with a capital of $3,000,000 has been formed to operate the Knapp boats, which will be double-screw propellers of new pattern. The prominent directors are Hon. George E. Foster, Toronto; F. A. Knapp, Prescott; Dr. Frank Buller, M. A. Hutchinson, M. L. A., W. H. Stewart and M. J. Baker, all of Montreal. The capacity of the proposed fleet will, it is understood, be 30,000,000 bushels in the season between the lake ports and Montreal.

Plans are being made by Bateman, McDougal & Palmer, of Buffalo, for the construction of a fine passenger steamer for Toledo parties, to run between Toledo, Put-in-Bay, and Sandusky. The steamer will be completed next fall, the Courier says. The new steamer will have a steel hull and will be 175 feet over all, 32 feet beam, and be modern in every respect. She will have a complete electric lighting plant, and triple expansion engine. She will be completed throughout in the finest style.

The authorities of Mackinac Island village have decided to carry the "fog horn" case to the Federal Court of Appeals, it being considered that the Government can yet be compelled to remove what the village considers a nuisance. When about ten years ago the Government established the station on the island, a commission awarded the village $1,500 for damages. The federal officials appeal to the United States Circuit Court and the claim was disallowed. It has now been determined by the village that the noise made by the fog horn is intolerable and the decision of the court will be appealed from with the main intention of having the horn removed altogether from that section of the island.

## TELEPHONE CHARTER PARTIES AND OTHER RECORDS.

Can that contract called a "charter party" be made by telephone? This is denied in a pending suit. In a general-court-martial order of the War Department, in subdepartment of the Missouri, May 12. 1874, we find this ruling: "In the case of Sergeant Van Nouhby the proceedings, finding and sentence are disapproved. The telegraphic information recited in the record is deemed insufficient to justify Lieutenant O'Connor to act as a member of the court. The court should have awaited the receipt of the order detailing Lieutenant O'Connor as member before proceeding to trial." G. C. M. O. 42, Dept. of Mo. 1874.

A valuable analogy can be traced between a court-martial record and the record of a charter party. Here space can only be given to a few samples of the rulings of the War Department as to the necessities of the one. In General Order 120, Dept. of Mo., (1867), it is held, p. 8: "The record does not show that the court convened pursuant to the order constituting it, nor that it was organized as the law requires, which defects are fatal to the validity of the sentences. The record in each case must be complete in itself. The fact that the court was duly organized cannot be made out by reference to a previous record in the same series. The court and judge-advocate are chargeable with great carelessness in allowing these prisoners to escape a most merited punishment on account of such a defect in the record. It being impracticable to reassemble the court" [to amend the record in accordance with the fact] "the prisoners will be released and returned to duty." The charges against these men were "desertion" and larcenv. They were found guilty of all, but the charter-party for sailing against them was not in writing—not all of it. G. O. 297 War Dept., Sept. 3, 1863, reads: "The following defects in the records of a general-court-martial are published for the information and guidance of all concerned: "The records contain no sufficient statement as to the organization of the court, nor do they set forth the order convening it. For these reasons the sentences in all of the above cases are inoperative."

Other "general-orders" or "general-court-martial-orders" (the names mean about the same, the former being old-fashioned, the latter, more modern), are quoted here as authorities for the completeness of the record.

G. C. M. O. 20 War Dept., A. G. O. 1866: "In the case of Haythe promulgated in G. C. M. O. 101 Dept. of Va., Richmond, Va., Nov. 29, 1865, the record, as transmitted to the Reviewing Authority, did not show that two-thirds of the members concurred in the death sentence [Art. 50, Sec. 1624 R. S.], and was corrected without re-assembling the commission. The officers composing the commission, having been mustered out of the service, the record cannot be remanded. This defect is fatal to the validity of the proceedings and renders the sentence inoperative. The guilt of the prisoner was clearly established, and it is to be deplored that an aggravated crime escapes punishment in consequence solely of the *laches* of the judge-advocate who tried the case."

G. C. M. O. 46, Dept. of the East, 1893: "It is an inflexible rule that a record must set forth all the proceedings had in a case."

G. O. 64, Dept. of the Ohio, May 16, 1864, pp. 10-11: "Sentence in case of Lavrin disapproved. The records show that a portion of the proceedings in the case are recorded in some other place than the record, which reads, 'The prisoner having heard the orders convening the court read at a previous session,' etc." G. O. 36, Dept. of Missouri, March 8, 1867, p. 6: "The record does not contain a copy of the order convening the court—which is fatal to the validity of the sentence."

G. O. 23, Dept. of the South, 1870: "Disapproved for fatal error, the record failing to show that the court and judge-advocate were sworn in the proceedings of the first day; also, there is no note of an adjournment."

G. O. 29, Dept. of the Platte, 1869: "The proceedings and record in each case should be complete and distinct in itself, without reference to the evidence in any other case in support. The sentence is disapproved."

G. O. 22, Middle Mil., Dept., Baltimore, Md., 1865, p. 18: "The record of the general-court-martial fails to show that two-thirds of the members of the court concurred in the sentence of death. This is a fatal defect. In view of the defect and of the impossibility of re-convening the court in order that the record might be amended, should the facts warrant it, the proceedings, findings and sentence are disapproved."

G. O. 172, Dept. of the Ohio, Cincinnati, O., Oct. 24, 1863: "G. O. 2,. . . . . appointed a court-martial to assemble at Mount Stirling, Ky. Instead of convening at Mount Stirling, Ky., the members assembled without warrant, at Lexington Ky., and there organized and transacted the business brought before them. The proceedings of said illegal body, as organized without authority at Lexington, are null and void. It is assumed that they acted through ignorance and without intentional disrespect for the laws for the government of courts-martial. They will readily perceive the injury their conduct in assembling without authority at Lexington, has inflicted on the service."

G. O. 185, Dept. of the Ohio, Nov. 23, 1863: "Sentence disapproved, being void. The court was ordered to meet at Cumberland Gap; the proceedings are dated Greenville, Tenn."

G. O. 292, War Dept. A. G. O., Washington, Aug. 22, 1863: 1. "The following defects in the records of the general court-martial, which tried . . . . New Jersey Volunteers . . . are published for the guidance of all concerned. The records in each case fail to show that the court was organized as the law requires or that it was organized at all. If a record does not show that a court convened pursuant to the order constituting it, the defect cannot be supplied by a reference to the record of another case tried at an earlier hour on the same dav in which this does appear" . . . . [p. 2]. "These defects render the sentences inoperative."

G. O. 5, Dept. of Louisiana, 1868, p. 6. "The record does not show that the court met in accordance with its adjournment." (Sentence disapproved.) Page 7, "the record in one case states that the court adjourned 'until the 30th July.' The record of the session—July 30th—states that 'the court met pursuant to the foregoing order' (the order constituting it). It should have been added in this, as in all similar cases, 'and to adjournment.'"

G. O. 187 War Dept. A. G. O., 1863: "The record is fatally defective in not showing that the court was properly organized, and the sentence is therefore inoperative; but, as the accused admitted his guilt of a most gross, debasing offense, the President directs that he be dismissed the service.

G. O. 180, War Dept., A. G. O., 1863: "The testimony clearly shows that the findings were correct and the sentence just, but the record is fatally defective in not showing that the judge-advocate was sworn."

A naval court martial is convened "by a brief written order, addressed to the senior member of the court, stating the names and rank of the members of the court and of the recorder" or judge-advocate, "and the time and place of meeting, and by written orders to the other members of the court and the recorder." (Art. 1751, Navy Reg. of 1896). These orders or summons are issued by the officials designated in Art. 38 and 26, Sec. 1626, R. S. Only one such order obviously convenes no court, and should a "record" not affirm that any court-martial was convened except, if at all, "by virtue of" a summons to one officer, the requirement of Art. 39, Sec. 1626, R. S., that not "less than five commissioned officers shall be summoned," before trial, would not be affirmed.

Washington, D. C. GEORGE F. ORMSBY.

## STATEMENT OF THE VISIBLE SUPPLY OF GRAIN.

As compiled by George F. Stone, Secretary Chicago Board of Trade March 22, 1902.

| CITIES WHERE STORED. | WHEAT. Bushels. | CORN. Bushels. | OATS. Bushels. | RYE. Bushels. | BARLEY Bushels |
|---|---|---|---|---|---|
| Buffalo | 1,763,000 | 111,000 | 30,000 | ..... | 431,000 |
| " afloat | ..... | 84,000 | ..... | ..... | ..... |
| Chicago | 6,632,000 | 4,536,000 | 429,000 | 956,000 | 163,000 |
| " afloat | 515,000 | ..... | 133,000 | 77,000 | ..... |
| Detroit | 221,000 | 18,000 | 2,000 | 62,000 | ..... |
| Duluth | 14,137,000 | 85,000 | 199 00 | 458 000 | 311,000 |
| " afloat | 511,000 | ..... | ..... | ..... | ..... |
| Fort William, Ont. | 4,512,000 | ..... | ..... | ..... | ..... |
| Milwaukee | 714 000 | 263,000 | 154,000 | 25,000 | 133 000 |
| Minneapolis | 14,296,000 | 45,000 | 181,000 | 45,000 | 61,000 |
| Montreal | 73,000 | 9,000 | 195,000 | 22,000 | 64,000 |
| Port Arthur, Ont. | 265,000 | ..... | ..... | ..... | ..... |
| Toledo | 81,000 | 813,000 | 531,000 | 160,000 | ..... |
| Toronto | 84,000 | ..... | 15,000 | ..... | 44,000 |
| On Canals | 46,000 | 3,000 | 112,000 | 37,000 | 50,000 |
| Grand Total | 50 948,000 | 9,108,000 | 3,219,000 | 2,070,000 | 1,759,000 |
| Corresponding Date, 1901 | 54,714,000 | 22,862,000 | 10,935,000 | 1,118,000 | 1,214,000 |
| Increase for week | ..... | ..... | ..... | ..... | ..... |
| Decrease " " | 1,049,000 | 578,000 | 267,000 | 10,000 | 119,000 |

While the stock of grain at lake ports only is here given, the total shows the figures for the entire country except the Pacific Slope.

## EASTERN FREIGHT REPORT.

Messrs. Funch, Edye & Co., New York, report the condition of the eastern freight market as follows:

Whilst the freight market generally cannot be described as being any firmer, prompt steamers from the northern Atlantic ports are commanding a little higher premium, owing to the scarcity of spot tonnage. There have also been a few enquiries for handy size vessels for grain, and whilst the price of cereals has declined somewhat during the present week shippers are unable to effect business except on a very low freight basis, viz.: in the neighborhood of 2s. to Cork f. o. Timber charterers from the Gulf have taken up further tonnage on the basis of previous figures. For the far East three further futures have been made for case oil, but the rates accepted do not show any improvement. The two charters reported in this issue from southern Atlantic ports have been taken to cover old phosphate contracts. Business in general cargo from the Gulf still continues neglected.

While business in sail tonnage continues of a limited character, the market generally and especially for the better class of vessels, displays more stability.

We have, however, nothing else of particular interest to note.

The strike of the ship carpenters and calkers at the Davidson shipyards in Bay City is settled, their demands of 25 cents per hour, with a contract to pay that rate for the coming year, being granted.

## NOTES.

THE H. W. Johns-Manville Co. have secured recently, several contracts for the application of their coverings, among which are the following: The Bark Reality Bldg,. (Blake & Williams, contractors) Sixty-third street and Madison avenue, New York City. Moulded Sectional Covering. Asbestocel Sectional Covering is being used by the International Silver Co., of Meridan, Conn., while the Club House at the Jamaica Race Track is being fitted with Asbestocel covering, the contractors being G. I. Roberts & Bro. Fire Felt and Asbestocel Coverings are being used for insulation by the Landers Frary & Clark Co., New Britain, Conn.

THE BUREAU OF NAVIGATION of the Navy Department announces that the Secretary of the Navy, having decided to fit the masts of all new vessels, and those being refitted at navy yards with wireless telegraphic apparatus, the Bureau is considering the enlistment and training of electricians who are specially fitted for its operation and is giving the preference to the enlisted men in the navy who are competent electricians. Applications for this assignment should be made at once to the Bureau, stating what experience the applicant has had and forwarding any recommendations, testimonials, etc. All applicants must be American born or naturalized citizens of the United States.

THE plans for the new Cunarders are not yet definitely settled. The leading dimensions of the vessels, subject to revision, are: Length, over all, 700 ft.; breadth moulded, 73 ft.; and depth, 50 ft. The gross tonnage will be, approximately, 20,000 tons; but this will, of course, depend upon the ultimate co-efficient of fineness, and as the vessels are intended for high speed, they will necessarily be very fine-lined. As the vessels are not yet finally designed, it is, of course, impossible to say who is going to build them, or what power is going to be put into them. Representatives of the company have been in Germany studying the question of triple-screw ships, and, as the working of the engines of the Campania and Lucania have always given the highest satisfaction, they will probably be very closely copied in designing the machinery (whether it be for twin or triple screws) for the new ships. The working of the turbo-motor type of machinery has lately been under the close observation of the Cunard company's engineering staff, and there is more than a mere possibility that turbo-motors may supply the driving power for the new ships.

IT HAS long been known that there is coal in Greenland, and it may some day furnish the most reliable means of reaching the pole, which must be attacked from Greenland or adjacent islands as a base. It also appears that there is coal in the island of Spitzbergen, in the Arctic ocean north of Norway. Consul General Bordewich writes from Christiania, Norway; in regard to coal deposits recently found in Spitzbergen. According to newspaper reports, there are indications that remuneratve coal mining might be conducted in the islands, provided sufficient capital were invested. It has been shown that after having blasted forty feet through clear ice, solid rock was struck, and at a depth of sixty feet dry coal of good quality was found. The layer of coal had a thickness of ten feet and appeared to be extensive. In the mountain were also found petrified apples, pears, nuts and even leaves of bananas. Here is additional proof of the extraordinary change that has taken place in the climate of our earth. What are now the polar regions once enjoyed temperate if not tropical conditons.

THE BUENOS AYRES STANDARD describes a new naval graving dock of monumental dimensions built at Bahia Blanca, Argentina, under the supervision of Luigi Luiggi, an Italian engineer. This drydock is large enough to admit the largest vessel afloat. It can be divided into sections to suit ships of different sizes, or to permit the docking of two ships at the same time. The Standard gives the following figures as to its dimensions: It is 100 feet longer than the dock at Talcahuano, 20 feet longer than the graving docks in construction in the dock-yards of Devonport, the most modern in England; 3 feet longer than the four graving docks in construction in the dock-yards of the United States, and 8 feet longer than the largest graving dock at Spezzia. It is the largest graving dock in America and may be said to be the largest naval graving dock in the world. It can be filled with 50,000 tons of water in 40 minutes, and can be pumped dry in 2½ hours. The sliding caisson may be opened or shut in three minutes by hydraulic machinery. In its construction were employed 75,000 cubic meters of concrete; 15,000 tons of cement; 6,000 tons of granite (facings and copings) and 1,500 tons of iron work (caissons, pumps, etc.)

## MARINE PATENTS.

695,711.—Anchor. John Eynon, Gateshead, England, assignor of two-thirds to William Summerbell Richardson, Gateshead, England, and Edward John Williams Powell, Newcastle-upon-Tyne, England.

695,717.—Propeller gear. George W. Gardiner, Philadelphia, Pa.

695,634.—Life-boat. Charles Dickenson, Washington, D. C.

695,758.—Boat. William C. McElheny, Pittsburg, Pa.

## APPOINTMENT OF OFFICERS.

W. W. BROWN, Cleveland.

| STEAMER. | MASTER. | ENGINEER |
|---|---|---|
| L. C. Smith, | E. T. Rattray, | Duncan Fraser. |
| Wm. Nottingham, | C. D. Woodward, | Jno. Davidson. |
| H. S. Wilkinson, | Wm. Smith, | Geo. Averill. |
| W. W. Brown, | H. F. Loftus, | Arch. Henderson. |
| A. G. Brower, | Frank Boyer, | Robt. Leitch. |
| Wm. H. Gratwick | Sidney LeBeau, | A. Barker. |
| Geo. Presley, | R. Z. Utley, | J. W. Brown. |
| N. Reddington, | ... ..... .... ... ..... .... | |

FRANK W. SMITH, Milwaukee.

| | | |
|---|---|---|
| Pueblo, | Duncan Stalker, | W. J. Reardon, |
| Topeka, | David Wilson, | H. C. McLean. |
| Denver, | E. A. McGregor, | Jno. Smith. |
| Omaha, | D. W. Carr, | .... .... ..... |
| J. W. Wescott, | H. Wanvig, | C. Olson. |
| Mary H. Boyce, | J. D. Wanvig, | H. Stokke. |

MINNEAPOLIS, ST. PAUL & BUFFALO STEAMSHIP CO., J. C. Maclay, Gen. Mgr., Buffalo, N. Y.

| | | |
|---|---|---|
| St. Paul, | Peter Thompson, | Henry Stone, |
| Minneapolis, | Geo. W. Moore, | D. J. McMillan. |
| Huron, | W. Moore, | C. C. Folkerts. |
| W. C. Rhodes, | P Dowdell, | Guy Hemenger. |

W. P. REND & CO., Chicago.

| | | |
|---|---|---|
| G. G. Hadley, | M. Fitzgerald, | ..... ..... ... |
| Panther, | J. H. Madden, | ..... ..... ... |
| Massasoit, | D. Buchanon, | ..... ..... ... |

MARINE TRANSIT CO., John Drawe, Mgr., Marine City, Mich.

| | | |
|---|---|---|
| Toltec, | Henry Shackett, | A. Horten. |
| Zapotec, | Peter Thomson, | ..... ..... ... |

J. M. SHACKETT, Mgr., Marine City, Mich.

| | | |
|---|---|---|
| Faustin, | J. M. Shackett, | Saml. Radcliffe. |
| Amaretta Mosher, | Jos. Shackett, | ..... ..... ... |

H. N. LOUD, Oscoda, Mich.

| | | |
|---|---|---|
| Jno. B. Ketchum, | M. Christy, | Geo. Bowen. |
| Seattle, | C E. Barnes, | Thos. Braund. |

McGRAW TRANSPORTATION CO., Bay City, Mich.

| | | |
|---|---|---|
| City of Paris, | E. D. Ballentine, | W. C. McDougall. |
| City of Venice, | Philip Broderick, | J. A. McDougall. |

C. McG. KOCH, Sandusky, O.

| | | |
|---|---|---|
| Annie Laura, | D. O. Lockhart, | J. Shampaign. |
| Dashing Wave, | J. A. Lockhart, | ..... ..... ... |

WM. E. PIERCE, West Bay City, Mich.

| | | |
|---|---|---|
| Benton, | Wm. E. Pierce, | Aaron Hagadon. |
| J. C. Filmore, | Frank Ortlem, | ..... ..... ... |

FRED KIRKER, Managing Owner, Bay City, Mich.

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|---|---|---|
| Wm. Brake, | Fred Kirker, | ..... ..... ... |

CALUMET TRANSIT CO., F. W. Smith, Managing Owner, Milwaukee, Wis.

| | | |
|---|---|---|
| E. M. Peck, | A. C. Callam, | Wm. Noble. |

W. H. LOUTIT, Grand Haven, Mich.

| | | |
|---|---|---|
| Pentland, | T. McCambridge, | C. Ball. |

EDWARD MEHL, Erie, Pa.

| | | |
|---|---|---|
| Uganda, | W. W. Wilkins, | W. Millington. |

M. H. TAYLOR, Erie, Pa.

| | | |
|---|---|---|
| Niagara, | M. A. Budd, | A. Turner. |

MANITOU STEAMSHIP CO., N. F. Leopold, president, Chicago.

| | | |
|---|---|---|
| Manitou, | Allan McIntyre, | Roy L. Peck. |

W. E. RICE, Harbor Beach, Mich.

| | | |
|---|---|---|
| Rhoda Stewart, | Wm. J. Cowles, | G. McClelland. |

J. B. FAIRGRIEVE & CO., Hamilton, Ont.

| | | |
|---|---|---|
| Arabian, | Oliver Patenaude, | J. H. Brown. |

EUGENE M. CARLETON, Cleveland, O.

| | | |
|---|---|---|
| H. D. Coffinberry, | Wm. Furgeson, | ... ..... .... |

A. C. WANWIG, 79 Evergreen Ave., Chicago.

| | | |
|---|---|---|
| J. D. Marshall, | A. C. Wanwig, | Christ Dahl. |

RUTLAND TRANSIT CO., Ogdensburg, N. Y.

| | | |
|---|---|---|
| W. L. Frost, | Wm. Spence, | Geo. Adams. |
| W. A. Haskell, | W. H. Plumb, | A. J. Kinch. |
| Wm. J. Averell, | T. M. Hough, | Geo. W. Willix |
| Gov. Smith, | W. S. Shay, | L. O. Willix. |
| J. R. Langdon, | Harvey Brown, | D. G. Costello. |
| A. McVittie, | W. D. Wait, | H. M. Burton. |
| F. H. Prince, | E. B. Shay, | Jno. Alexander. |
| H. R. James, | Jas, Owens, | Jno. Turnbull. |

MESSRS J. A. CALBICK & CO., Chicago, Ill.

| | | |
|---|---|---|
| Kalkaska, | Thos. Higgins, | C. F. Jubenville. |
| Oregon, | Frank Elliott, | Gust Girtung. |
| J. H. Prentice, | Robt. Evans, | F. E. Wenkle. |
| P. J. Ralph, | Ira Mansfield, | Wm. Galpin. |
| Harold, | L. Davidson, | ... ..... .... |
| Oak Leaf, | G. T. Hansen, | ... ..... .... |
| R. L. Pryer, | Emil Christen, | ... ..... .... |
| Halsted, | Jno. Lundberg, | ... ..... .... |
| Middlesex, | Paul Weimar, | |
| S. H. Foster, | | |
| Connelly Bros. | Carl Johnson, | |

MR. JOHN J. WARDE, Chicago, Ill.

| STEAMER. | MASTER. | ENGINEER. |
|---|---|---|
| Niko, | Thos. Beggs, | Jno. Collins. |
| A. M. Peterson, | Chas. Bough, | ..... ..... ... |

WM. E. PIERCE, West Bay City, Mich.

| | | |
|---|---|---|
| Binton, | Wm. E. Price, | Aaron Hagadon. |
| C. J. Fillmore, | Frank Dettman, | ..... ..... ... |

WILSON TRANSIT CO., Cleveland, O.

| | | |
|---|---|---|
| Henry W. Oliver, | W. W. Dawley, | F. C. Stoeber. |
| Capt. T. Wilson, | J. S. Wood, | Fred. Harmon. |
| A. Carnegie | C. C. Tousley, | James F. Derrig. |
| W. D. Rees, | C. A. Benham, | John N. Kirby. |
| Yuma, | Daniel Buie, | J. Heinkelmann. |
| Spokane, | ..... | Charles Stoeber |
| D. Z. Norton, | J. D. MePherson, | ..... ..... |

UNITED STATES & DOMINION TRANSIT CO., Booth's Line, Chicago, Ill.

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| America, | Jacob T. Hector, | ..... |
| Argo, | E. S. Smith, | J. E. Evans. |
| J. B. Barker, | ..... | ..... |
| Hunter, | ..... | ..... |
| Hiram R. Dixon, | ..... | ..... |

INTER OCEAN TRANSP. CO., Milwaukee, Wis.

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| Maryland, | J. E. Yax, | M. Conley. |
| Manchester, | Tim Kelley, | Jas. Grant. |

WISCONSIN STEAMSHIP CO., Milwaukee, Wis.

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| F. Schlesinger, | D. P. Craine, | A. R. Fortier. |

MILWAUKEE STEAMSHIP CO., Milwaukee, Wis.

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| F. L. Vance, | F. W. Van Patten, | Dan. Darcy. |
| R. P. Flower, | E. B. Marquette, | ..... |

LEATHEM & SMITH TOWING & WRECKING CO., Sturgeon Bay, Wis.

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| Pewaukee | Henry Tofte, | Mark Holt. |
| Jos. L. Hurd. | Abe Evanson, | C. D. Elliott. |
| J. N. Foster, | Andrew Olsen, | Pat Curry. |
| Advance, | O. L. Anderson, | ..... |
| Alert, | Sam Christofer, | ..... |
| John Leathem, | Louis F. Strahan, | Frank Larson. |
| Geo. Nelson, | Jas. Tofto, | John Riley. |

ANCHOR LINE, Buffalo, N. Y.

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| India, | H. O. Miller, | Jno. Forrester, |
| China, | Chas. Christy, | John Wise. |
| Japan, | John Doherty, | Wm. Wilson. |
| Alaska, | F. F. Williams, | A. D. Birdsall, |
| Wissahickon, | H. Cronkhite, | A. Fraser. |
| Delaware, | P. O'Neill, | Wm. Garritty. |
| Juniata, | G. J. Delaney, | Jno. Clark. |
| Conestoga, | Moses Boggan, | A. E. Welch. |
| Lycoming, | J. H. McAvoy, | Chas. Allender. |
| Conemaugh, | F. Bloom, | Al. Edgar. |
| Lehigh, | Edward Martin, | Tim. Griffin. |
| Clarion, | L. Wright, | F Rehbaum, Jr. |
| Susquehanna, | D. Ryder, | F. Rehbaum, Sr. |
| Codorus, | A. McKenzie, | Wm. Swain. |
| Schuylkill, | Chas. Nelson, | John Jordon. |
| Mahoning, | Jos. Corcoran, | Al. Black. |

MR. J. L. CROSTHWAITE, Buffalo, N. Y.

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| St. Louis, | Jas. Brines, | M. B. Townsend, |
| Champion, | Jno. H. Mills, | ... ..... ..... |
| Buckeye State, | R. C. Smith, | ... ..... ..... |
| Elk, | A. Booth, | A. W. Booth |
| Chas. Beatty, | Jno. Milne, | H. Lindsley. |

MR. W. C. RICHARDSON, Cleveland, O.

THE RICHARDSON TRANSPORTATION CO., W. C. Richardson, Manager.

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| W. C. Richardson, | Thos. Wilford, | Jas. Falconer. |
| Roumania, | C. C. Mason, | Larry Regan. |

THE JACKSON TRANSIT CO., W. C. Richardson, Mgr.

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| Saml. Mitchell, | John H. Babbitt, | A. C. Bowen. |
| Chickamauga, | H. W. Phillips, | ... ..... ..... |

Boats Owned and Managed by W. C. Richardson.

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| J. H. Wade, | Richard Call, | Jno. McMonagle. |
| J. H. Devereux, | C. R. Cleveland, | Thos. Shannon. |
| Iroquois, | E. J. Burke, | L. L. Bowen. |
| J. H. Outwaite, | Ralph Nutting | R. A. Davidson, |
| Crete, | Jno. Eberlein, | ... ..... ..... |
| Mary B. Mitchell, | Jno. McKeighan, | ... ..... ..... |

MESSRS. GEO. HALL COAL CO., Ogdensburg, N. Y.

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| Hecla, | D. Horrigan, | D. W. Doyle. |
| Rugee, | R. FitzGerald, | A. E. Cline. |
| Proctor, | W. A. Russell, | J. W. Estes. |
| Hall, | Jos. Richard, | R. G. Jardin. |
| Curlew, | P. J. McGrath, | Geo. W. Cline. |
| Sherman, | M. Hourigan, | ..... ..... ..... |
| Bolivia, | Jos. Gooden, | ..... ..... ..... |
| Beal, | Louis Dion, | ..... ..... ..... |
| Mathews, | F. D. Lum, | ..... ..... ..... |
| Lyon, | S. LaFlour, | ..... ..... ..... |
| Diamond, | P. Sylvian, | ..... ..... ..... |
| Argosy, | Geo. Robidean, | ..... ..... ..... |
| Mohawk, | P. P. Leduc, | |
| Onondaga, | Lionel Leduc, | |

S. R. MACLAREN, Toledo, O.

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| S. C. Baldwin, | Jas. A. Maddigan, | Henry Bayton. |
| A. A. Carpenter, | John Madden, | |
| Myron Butman, | John Bell, | |

THE VALENTINE FRIES BOATS, Managed by W. C. Richardson.

| STEAMER | MASTER. | .... ENGINEER. |
|---|---|---|
| Wm. Edwards, | J. LaFromboise, | Moses Blondin. |
| Golden Age, | D. H. Stalker, | ..... |

DULUTH & ATLANTIC TRANSPORTATION CO., Geo. M. Black, auditor, Detroit; Managed by W. C. Richardson.

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| Iron King, | Thos. J. Brady, | ..... ..... ..... |
| Iron Queen, | T. Fitzsimmons, | ..... ..... ..... |

## DYNAMITE.

Dynamite is an explosive substance, patented by A. Nobel in 1867. It consists of a siliceous earth obtained at Oberlhoe, in Hanover, known as kiesulguhr, with 75 per cent. of nitro-glycerine, the object of the mixture being to facilitate the carriage and use of the substance by diminishing its susceptibility to explode by shock while not destroying its explosive force.

The siliceous matter is of a diatomaceous origin; it is extremely friable and porous, and has a considerable absorbent power. Nitro-glycerine is a yellowish oily liquid, heavier than and insoluble in water, but dissolved by alcohol. The explosive force of nitro-glycerine, compared with that of an equal volume of gunpowder, is as 1 to 31. The mixture remains without change for any length of time unless exposed to water. It burns away quietly if a light is applied to it, but explodes if heated to a high temperature. Usually it is exploded by a specially-arranged fulminating cap. It freezes at a temperature of 40° Fahr., and explodes if heated to 360° Fahr.

In case of dynamite being frozen it should be thawed in a specially-made pan, with a double case. The explosive is placed in the inner case, and the outer case is filled with hot water. The heat given off from the water thaws the contents of the pan.

Dynamite, when in a proper condition, is plastic, and may be safely handled, and is very convenient for use as an explosive. Irregularly-shaped holes may be easily charged with it, and it does not explode at ordinary temperature either by spark or flame.

Dynamite is mostly used for blasting purposes when shaft sinking and heading in hard rock. Sometimes dynamite is exploded by safety-fuse and detonator, the detonator being connected to a charge, and the whole carefully tamped. Fire is applied to the fuse, which ignites the priming mixture in the cap, which, in turn, fires the fulminate of mercury which explodes the charge.

The best method of firing dynamite is by electricity. The necessary apparatus consists of the battery, the cable, and detonators. The latter are practically "high" tension and "low" tension, the low tension appearing to be the best for mining work, as it can be tested by a galvanometer.

An ordinary detonator, consisting of fulminate of mercury in a copper tube, is fitted with the electric fuse, an arrangement consisting of an explosive composition, in which the ends of two insulated wires are embedded, between which the electric spark is formed, or between which, in case of the low tension fuse, a short piece of platinum wire is made hot.

The two wires are attached to the two wires forming the cable which consists of a pair of insulated copper wires braided together in one cable. The detonator is inserted into the charge in the usual way, and when all is ready the workmen are withdrawn to a place of safety, and the other end is attached to the battery. The handle is turned until full speed is attained when the button is pressed, and the current passing along the wires to fire the shot.—The Science and Art of Mining.

## NOTES ..... .... ..

FUEL from sawdust in cake or brick form has been produced in Prussia. The octagon-shaped bricks are 6½ inches long, 3½ inches wide, and ¾ of an inch thick, and weigh ½ pound each. In the district and surrounding towns where the factory was located, the schools were heated by this fuel, which burns in air tight stoves without a large flame, and leaves but little ash. It is stated to be an ideal fuel, being clean, and no regulating of the stove being necessary. No binding ingredient is used; the sawdust is dried and pressed in the shape of the briquette. The absence of all tarry or oily substances prevents smoke.

MR. P. A. PETERSON, chief engineer of the Canadian Pacific, has gone to Germany to look after an order of 20,000 tons of steel rails which the company has placed there. Ten thousand tons will be rolled by Krupp's at Essen, and 10,000 by the Bruchan's, whose works are close to Krupp's. The German market at present seems to be the most favorable, and can undersell both the American and the English mills as well as give earlier delivery. A report that the Grand Trunk Railway is also in the German market with an order for 25,000 tons is denied at the general office, and it is understood that the company has a fairly large stock on hand.

At the home of the bride's parents, in Saybrook, on Tuesday, Capt. C. H. Cummings and Miss Harriet A. Tenney were united in matrimony. Capt. Cummings is one of the best known captains on the lakes, having sailed on fresh water for the past twenty-five years. This year he will take out the steamer Mauna Loa. After a short wedding trip to Niagara Falls the couple will return to Geneva to make their home.

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CLEVELAND, O., MARCH 27, 1902.

## MENACE TO NAVIGATION.

Some action may be taken during the present session of Congress toward bringing about a removal of the wrecks of the six stone cribs which were originally set out in 1899 to serve as the foundations for lights marking the entrance and edges of the dredged twenty-foot channel in Lake St. Clair. In the last report submitted by Commander J. C. Wilson, recent United States light-house inspector of the eleventh district, and Capt Lansing H. Beach, United States light-house engineer of the same district, the two officials joined in recommending that the Light-House Board ask for a special appropriation from Congress to provide funds for the removal of the cribs. Should the recommendation be accepted and acted upon it may still be some time before the appropriation can be secured and the work of taking up the cribs started.

In their report to the Light-House Board the light-house inspector and engineer expressed the opinion that it would not be practicable to make use of these cribs for the purpose contemplated when they were erected, stating that they were the source of more or less danger to vessels passing in the vicinity and recommending their removal at the earliest possible opportunity. They also stated that in their opinion the two lines of gas lights exhibited from buoys on the edges of the twenty-foot channel, taken in connection with the Isle Aux Peches range lights, would be the most satisfactory and practicable method of lighting the channel. The report also embodied a recommendation for an appropriation for the construction of new permanent range lights to replace the temporary affairs now maintained at Isle Aux Peches, and which are every season carried away by the ice

While the wrecks of the cribs are outside of the twenty-foot dredged channel and are marked during the season of navigation which to some extent renders them harmless, they are regarded by vesselmen generally as somewhat of a menace to navigation. Their presence along the edges of the narrow channel affords an ever present possibility of danger to vessel property. Already the D. & C. line has incurred considerable loss from the cribs, the steamer City of Mackinac having broken her wheel on one of them about two years ago.

Vessels attempting to continue on their course during thick or foggy weather incur a constant risk of butting into one of the wrecks.

The danger is of course greater at the opening of navigation before the buoys and markers have been placed to designate the cribs, and just as imminent after these markers have been removed at the time when the government closes navigation.

The wrecked cribs are entirely submerged, but their presence might on a clear day be noted by a discoloration of the water at the points where they lie.

## SITES FOR SAILORS' SNUG HARBOR.

Although of late but very little has been heard of the matter of establishing a Sailors'Snug Harbor for the old mariners who sailed the Great Lakes, the project has been by no means dropped, and ever since it was given a spurt by the members of the Lake Carriers' Association at their meeting in Detroit last January, those interested in the plan have been getting things in shape and it is hoped that before long there will be something definite to announce in this connection.

Several sites have been offered along St Clair river and above the Flats, and these are now under consideration by leading members of the Lake Carriers' Association, including President William Livingstone and Attorney Chas. E. Kremer, of Chicago, who at the last meeting made a strong plea for the old sailors. These gentlemen have been offered assistance from many of the large vessel owners, and it is hoped that sufficient funds may soon be volunteered to provide an endowment large enough to not only erect suitable buildings on one of the sites offered, but also to sustain the Snug Harbor and provide a comfortable home for the worn out old sailors.

The argument which has been used in connection with the establishment of the home is that the owners and shippers of the lakes should be the parties to maintain the Snug Harbor and care for the old mariners who are no longer able to maintain themselves.

## WAGE SCALE.

The Lake Carriers' Association fixed the wages for the seamen for the coming summer.

The scale is virtually the same as last year, the only exception being as to the wages received by the cooks, who this year receive an increase on almost all classes of boats, of $5 per month. The engineers are not included this year for the first time, principally because most of them came to terms with the owners some time ago, and also because the engineers objected to having their salaries fixed and announced. The scale adopted is as follows':

First class steamers, monthly wages: First mates, $96; second mates, $66; cooks, $66; helpers to cooks, $25; firemen, $45; wheelmen, $45; lookouts, $45; deckhands, $25; oilers, $45; firemen—fitting out and laying up, $1.50 per day and board themselves.

Second class steamers: First mates, $84; second mates, $54; cooks, $60; firemen, $45; wheelmen, $45; lookouts, $45; deckhands, $25; firemen—fitting out and laying up, $1.50 per day and board themselves.

First class consort and sail: First mates, $70; second mates (when carried) $50; cooks, $45; seamen $45

Second class consort and sail: First mates, $55; cooks, $45; seamen, $45.

## OPENING OF THE STRAITS OF MACKINAC.

Following are the dates of the opening of the Straits of Mackinac from 1858 including last year:

1901, April 14; 1900, April 18; 1899, April 26; 1898, March 28; 1897, April 7; 1896, April 16; 1895, April 1; 1894. March 29; 1893, April 17; 1892, April 9; 1891, April 17; 1890, April 8; 1889, April 6; 1888, May 4; 1887, April 24; 1886, April 21; 1885, May 5; 1884, April 25; 1883, April 28; 1882, April 3; 1881, May 3; 1880, April 4; 1879, April 22; 1878, March 15; 1877, April 18; 1876, April 28; 1875, April 28; 1874, April 29; 1873, May 1; 1872, April 28; 1871, April 2; 1870, April 18; 1869, April 28; 1868, April 19; 1867, April 23; 1866, April 28; 1865, April 21; 1864, April 28; 1863, April 17; 1862, April 18; 1861, April 25; 1860, April 13; 1859, April 3; 1858, April 5.

Capt. John O'Connor, one of the best known captains along the lakes, died suddenly at Toledo, on Wednesday, of blood poisoning, following the pulling of a tooth.

## SOUND SIGNALS AT SEA

Under the Presidency of Lord Rayleigh, a lecture on "Sound Signals" was given by Mr. E. Price-Edwards, of the Trinity House, before the Society of Arts, on the 5th inst. Some account was given of the experiments carried out last year by a specal committee of the Trinity House at the fog-signal station on St. Catherine's Point, in the Isle of Wright. The observations were begun on May 8, and were continued until June 13, and no fewer than 4,000 were recorded and tabulated. The lecturer remarked that the real value of a sound signal to the mariner in a fog was that he could form a fairly approximate idea of the direction from which it proceeded, and was thus able to keep away from it. But with signals conveyed by ætheric vibrations or wireless telegraphy, though he might be informed of the name of the station, he could not tell in what directon it lay, nor could he get any idea of how far it was distant. The instrumental trials at St. Catherine's Point were largely devoted to comparisons of efficiency between the siren principle and the reed principle of producing the sounds.

The trial of a new form of 7 in. disc siren with a very low note gave some interesting results. On one occasion, in fine, clear weather, with a light easterly wind, it was audible at a distance of over 20 miles, while the sounds of the higher-pitched cylinder sirens were lost at half the distance. But on another day, when the force of the wind was four and the sea was rough, the low-pitched note was lost at 1¼ miles.

The reed horn as now developed must be regarded as inferior to the siren as a sound producer, yet the committee thought it must be admitted that it had its advantages in situations where a sound signal of small range would be serviceable, or where there was no space sufficient for the machinery necessary for sirens. As regards the trumpets associated with the sounding instruments, the lecturer described the elliptical form suggested by Lord Rayleigh, and pointed out the importance of using trumpets the proper notes of which were in unison with those of the sound producers. He went on to discuss the effect of certain atmospheric influences, such as wind and fog, on the propagation of sound, and mentioned the curious "silent areas" which were noticed on several occasions during the experiments, the sounds beginning to die awav at a distance of about a mile from the siren or horn until they were very faint, or perhaps inaudible, and then recovering their strength when the three miles line had been passed. Lord Rayleigh, in opening the discussion on the paper, remarked that accumulated experience might in time enable the receiver of a signal transmitted by wireless telegraphy to tell from what distance it was being sent, while it was still an open question how far information could be gained as to the direction whence it came.

## LEVEL OF LAKE SUPERIOR.

"Why, it's all nonsense to say that a power canal at the 'Soo' will lower the level of Lake Superior," said P. M. Church, one of the pioneer water power men of Sault Ste. Marie, in the course of a conversation at Detroit. Mr. Church was a member of the first water power company that was organized at the "Soo," which abandoned its work in the late eighties because of the unfavorable turn affairs took at that time.

The fact of the matter is that a power canal at the 'Soo' will mean the raising of the level of Lake Superior from one to three feet," he continued. "Already in the course of the operations of the last five years on the American and Canadian sides, the level of the upper lakes has been raised over a foot, and the proposed work of the next year or two will raise the level from one to three feet more. You see, the very force which the canal must have is a fall of water, and to let the water rush through without at the same time damming the natural course down the rapids would be fatal to the very ends for which the canal is being built. This has been shown conclusively before the rivers and harbors committee, and the objection of the Lake Carriers is without foundation. To withhold permission to use the water for the power canal will mean a great loss to the 'Soo.' Of course, all the money has been spent with the confidence that permission would be granted and it will be a severe set-back if it is not secured now."

## FIREMEN'S WAGES.

Agreement made and entered into by the Marine Firemen, Oilers and Water Tenders of local No. 124 of the International Longshoremen's Association, party of the first part, and vessel owners who attach their names hereto as party of the second part.

Witnesseth, 1.—All boats owned and controlled by the party of the second part to employ union men as firemen, oilers and water tenders when such men can be had (except on boats carrying non-union engineers), when such men cannot be had they may employ any other men.

2.—The wage scale to be $45 per month from the opening of navigation until a higher freight rate is being paid in the fall, when the wages will be fixed by the vessel owners and a committee of the men.

3.—After the close of navigation and while the boats are being laid up the firemen are to receive the same wage scale as had been paid previous to their being laid up.

4.—That in the event of the firemen having any grievances in regard to their food or the sleeping quarters furnished they are to take the matter up with the chief engineer and in case he does not give the matter due consideration they may appeal to the owner of the boat and the president of the International Longshoremen's Association.

5.—The boats are to furnish sufficient, comfortable and clean bedding at all times.

6.—Firemen employed on boats, if they desire to lay off or quit the boat, they may do so by notifying the chief engineer on the arrival of the boat at the end of the round trip. If they do not notify then they are obliged to make another trip, as no member of the organization will be permitted to quit the boat just previous to her departure.

7.—There shall be no discrimination on the part of the members of local No. 24 of the International Longshoremen's Association against non-union engineers in carrying out the conditions of this agreement.

The agreement has been signed by several of the managers and others have agreed to do so. For the union the agreement was signed by James Stewart, of Buffalo, president of the union, Col. Wild and James Skelly, of Buffalo, Henry McMahon and Michael St. James, of Chicago, John Shea and James Murphy, of Cleveland, and President Daniel J. Keefe, of the Longshoremen's Association. This deal means that there will be no trouble in the engineers' department of the boats this year.

A meeting of the members of the Cleveland union was held at their headquarters on Water street, and the action taken by the committee in regard to the laws was ratified.

## A DAM THAT WOULD FLOOD BUFFALO.

Major Symons, the resident U. S. engineer, in an interview printed in the News, says that the proposed dam at the outlet of Lake Erie would raise the level of the harbor and Buffalo river three feet and by so doing increase the difficulty of relieving South Buffalo from floods. As there are large areas of South Buffalo not over six or seven feet above the average lake level it will be seen that a lift of three feet in the lake level would practically cut off the outlet and set back the water at every freshet, and that is just what Major Symons says would happen

In view of this and the great effort Buffalo is making to abolish these floods, it is plain that Buffalo cannot afford to indorse the plan of a dam across the head of Niagara river. Advantageous as the scheme may be, as a solution of the theoretical problem of "maintaining lake levels," and desirable as it is to the much-petted "shipping interests," who would be glad to have the government build the dam and relieve them of their half of the cost of dredging harbor channels, the proposed plan would be a most serious one for this city.

All talk of "building gates" in the proposed dam, "to draw down the level during the winter and spring when the freshets are due," is the veriest nonsense. Let any thinking person consider for a moment what sort of structure with "gates" it would take to hold back the mighty current of the Niagara—to control the tremendous forces of Niagara Falls! The dam, if ever built, would have to be one of the totally submerged type, a low, massive, granite rib built across the lip of the Lake Erie basin, permanently raising that lip an average of three feet, while over it would pour the mass of waters, many feet in depth. There would be no "drawing off the level" for flood times or any other times. The higher stage of water would be permanent.

This being so, it is plain what the result would be for Buffalo. For years we have fought the freshets and just now there is a near outlook that the long-standing evil will be remedied. We are not going to spend hundreds of thousands of dollars to save a large number of our people from being annually driven from their homes by high water, only to have that work nullified by a Niagara river dam! The city and the shipping interests can better afford to dig the harbor channels deeper—and the other lake cities do the same—than to have thousands of Buffalo homes rendered desolate, and business suspended over an important section of the city twice a year or oftener.

If the question is one of raising the water over the Lime Kiln Crossing and on the St. Clair Flats of the Detroit river, the government can better afford to build a dam and a pair of locks below the Lime Kiln reef than flood out this great city by a barrier across the Niagara.

## GENERAL LICENSES.

Lake vessel masters who have desired to take out papers for salt water commands as well, have come in contact with salt water prejudices and have been refused licenses, although they passed excellent examinations in many instances. General James A. Dumont, Supervising Inspector General of the Steamboat Inspection Service, has sustained the decisions against the lake men, and now it is proposed to take the matter directly to Secretary of the Treasury Shaw. It is charged that the ocean skippers have become alarmed at the increasing number of application, and have taken means to check them. The tendency of lake men to take up the study of ocean navigation has grown since the new canals of the St Lawrence opened a route between the lakes and the ocean for medium-sized vessels. General Dumont has decided that the lakes are not high seas and the ships on them are not in the coastwise service. The lake men contend that Judge Grosscup, of Chicago decided to the contrary.

## TO LOCATE THE NORTH POLE.

An important arctic expedition under Capt. Amundson, a Norwegian, will start out next spring with the purpose of locating the magnetic north pole and verifying and completing the observations of Sir J. C. Ross in 1831.

Capt. Amundson was the first officer of the Belgica, in Gerlache's antarctic expedition of 1897-1899. After his return he consulted Prof. Neumayer, of Hamburg, the greatest authority on terrestian magnetism, who declared that expert determination of the earth's magnetic north pole would be of immense value to science.

After studying with Prof. Neumayer, Capt. Amundsen has purchased the whaler Gjoa, reputed to be one of the strongest and best of the arctic fleet. The vessel can be handled by a crew of seven. It will be fitted with a petroleum engine and equipped for four years' stay.

In addition the most complete meteorological and oceanographic instruments, Prof. Neumayer has designed a traveling megnotometer of the type that Nansen used on the Fram, but with several improvements.

The Richmond observatory also is making a special inclinatorium. Prof. Nansen will superintend the general equipment of the expedition. Capt. Amundson's plan is to leave in the spring for west Greenland, where he will embark dogs. Then he will go to Lancaster sound, West Booth island, where he will leave a depot as near as possible to the point where Ross located the magnetic pole in 1831. He will winter at Matty island and take observations.

On the approach of spring Capt. Amundson and three men with two sledges and all the dogs will proceed to the point that Ross located, where they will make a long series of the most careful osbervations during the summer, and, if possible, during the whole twelve months, and establish observation stations throughout the regions in which the needle assumes a vertical position.

When one sled can be spared two of the men will return to the ship, and Capt. Amundson and the others will remain and make observations during the winter, living in snow huts like the Eskimos.

During the first and second winters they hope to erect an inclinatorium and a declinatorium for the purpose of taking regular hourly readings. In the spring of 1905 they will revisit the old stations and take fresh observations and check those of 1904. Then they will return to ship if possible and continue to the westward, returning by the northwest passage.

The Advance Lumber Co., which was incorporated at Columbus on Tuesday, will be a big factor in the lumber trade by lake in Cleveland this year. The capitalizationtion will be $250,000 instead of $20,000, as stated in the Columbus dispatches, and the work to be carried on here will be of considerable importance. The yards of the Kirk-Christy Co., which was absorbed, are located at the junction of Seneca and Ohio streets and the offices will be located in the Rose building. It is expected that the yards will be doubled at least, and it may be that the business will be so increased during the coming season as to require three times the yard space at present occupied. This will mean the shipment of an immense amount of lumber by lake. The yards at present carry 10,000,000 feet and the company has 15,000,000 feet at the head of the lakes which will be brought down during the year. The increase in the business of the Advance Lumber Co. is indicative of the coming activity in the lumber business. The season opens out brightly for the shippers, and for the carriers as well. At present there is a good demand for boats, and the outlook for season's rates has never been better. Present charters are made at $2.50 for the head of the lakes for first cargoes, but it is firmly believed on all sides that a general advance of two shillings will be made before the season is a month old.

A line of lake-built steamers from San Francisco to the Philippines Islands will be started during the coming summer. The steamers are the Meteor, Eureka, and Tampico, which were constructed in lake yards for H. A., W. A. and A. H. Hawgood, of Cleveland. They were sold to a syndicate of San Francisco capitalists and taken around Cape Horn two years ago. They have been trading to Honolulu, Alaska, and various coast ports. The corporation which operates them is known as the Globe Navigation Company

## CLEVELAND.

*Special Correspondence to The Marine Record.*

Mr. C. C. Canfield, who has for several years past been engaged with his father, W. A. Canfield, in the conduct of a large coal shipping business, will be associated with Mr. H. Coulby during the coming season, in the vessel department of Pickands, Mather & Co.

The steamer Steel King, the last boat building here for J. C. Gilchrist and others, will be ready for launching April 5. Some of the machinery, boilers and other equipment for the boat reached here from Cleveland on the Eliza Gerlach.

J. C. Gilchrist, who has a large number of vessels at upper lake ports, has only taken one cargo of grain, and he says he will do no more chartering until the ore question is settled. Mr. Gilchrist has made contracts to move about 800,000 tons of ore, which is about one-third of his fleet's capacity

Charles E. Kremer, Esq, the admiralty lawyer, has ordered two gavels made from the stern post of the old whale-ship Progress for presentation of the Chicago Yacht Club, and the Chicago Press Club. The oak was under water sixty years, and was carried numberless miles in the forty-five years of active service of the old whaler, which is now being broken up at South Chicago.

The steamer Burroughs, Capt. Stephen Jones, cleared on Tuesday, with coal for Port Burnell, Can., the first foreign clearance of the season. Capt. Jones is an ice fighter, and will. no doubt get across the lake if there is any possible way of doing it. The Borroughs is now owned by the Standard Constructing Co., of this city, and for the past several seasons has been engaged in taking supplies to the waterworks cribs. Capt. Jones can put the Burroughs through ice where no one else dare venture, as his record clearly shows.

The Pittsburg Steamship Co. has given orders to its crews to report at their boats early next week. Those members of the various crews who live in this city will start from here the first of the week, and it is expected that all of the boats will be fully manned by the middle of the week, so that they may start out when the ice is gone from the Straits, and when the gates of the "Soo" lock have been repaired. This is expected about April 10.

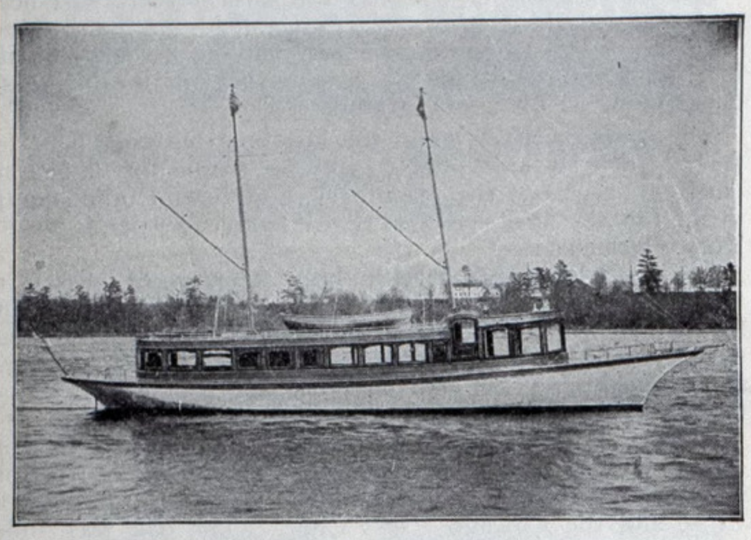
The controversy that has existed for a long time between the Williams Transportation Co. and the the Darius Cole Co., of Detroit, over the sale of the steamer Darius Cole, has been settled. By the terms of the settlement the unpaid notes held by the Cole company against the Williams company are to be turned over to the latter company, and the steamer will be returned to her former owners. The boat will leave about June 1 for her trip up the lakes to Detroit.

The following meteorological observations are furnished by the office of the U. S. Weather Bureau, for the week ending March 26th: Prevailing wind direction for the week, northeast; highest velocity 30 miles from the north on the 24th; mean temperature for the week 40, highest temperature 68 on the 26th; lowest, 28 on the 20th. Snu-rise and sunset data computed for local time. March 28th sun rises, 5:50 sets 6:21; March 31 sun sets, 5:45, sets, 6:25; April 3rd sun rises,5:40, sets 6:28.

Vessel room for 225,000 bushels of grain was chartered on Wednesday, at 1¾ cents to Buffalo. Charters thus far include the steamers Robert Rhodes, Maytham, City of Venice, City of Paris, Thomas Cranage and W. B. Morley, and the schooners Abyssinia and Granada. With the exception of the Morley, which has taken on a cargo of oats, all the other boats named have loaded wheat. The amount of grain stored in Chicago public and private elevators at the beginning of the week, was 21,620,000 bushels, as follows: Wheat, 10,716,000 bushels; corn, 7,621,000 bushels; oats, 1,997,000 bushels; rye, 1,073,000 bushels; barley, 213,-000 bushels.

An instrument for indicating and recording the approach of thunder storms is in use at St. Ignatius College, at this port. The apparatus comprises a relay, a sounder, a conerer, two condensers, a choking coil, two batteries of two and four dry cells, a clock with recording cylinder, and a copper collector fixed to the tower roof. The action of the storms upon the recorder is as follows: If, at some distance from the receiving station, there is a violent discharge of electricity within a cloud, the electrical oscillations it occasions will impinge upon the collector on the roof and close the coherer circuit. The relay in the coherer circuit is energised, and closes the recorder circuit in the usual manner.

Major Kingman has sent the rules which are to govern the opening of the drawbridges over the Cuyahoga river to Washington for action on the part of the Secretary of War. The rules were submitted, together with the result of the hearing here February 20, but Major Kingman sent no recommendations whatever. He did not change the rules much. The clause which demanded that the lookout on the draws should be able to see 1,000 feet up or down the stream was qualified to be "when such is possible." Although much has been said about the bridge hours on the railroad bridges, Major Kingman did not modify his suggestion there. As an officer of the government he deems it inadvisable to meddle with that affair, as the railroad bridges are private property, and therefore the public trespasses whenever it goes upon such bridges. Bridge hours were confined to the two draws of the Central and Superior viaducts.



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from 80 to 365 days and nights without attention, and can be seen a distance of six miles. . . . . .

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## SUMMARY OF ICE CONDITIONS.

The reports from the regular and display stations of the Weather Bureau on the Great Lakes indicate that there has been a steady decrease in the ice conditions during the latter part if the week, and that the cold weather of the first part of the week has been nearly offset. In Superior the ice pack continues along Minnesota Point at Duluth, closing the entrance to the harbor; in Chequamegon Bay the ice is wasting rapidly; no ice is reported off Keweenaw Point, and the ice fields at the eastern end of the lake are much broken up and will offer no serious obstruction to boats, and will move out with the first heavy wind; the ice in St. Mary's river is softening rapidly, and a much larger amount of open water is reported this morning from that section. In Green Bay a considerable amount of ice has moved out of the bay, but continues at the northern and southern ends, and holds fairly firm at Escanaba; there is very little ice reported in Lake Michigan, it being confined to small fields on the eastern shore, between South Haven and Ludington. At the Straits the conditions remain the same as reported last week, the freezing weather holding the ice firm. In Huron there was no ice reported from any station during the latter part of the week, and the northerly winds have brought the broken fields down to the river, and the lake is practically free; the departure of the steamer Alaska from Alpena to Toledo on the 21st, opened navigation as far north as that point. In Lake Erie the ice fields are confined to the eastern end of the lake. There is very little ice in Lake Ontario, and it is confined to the extreme east end.

In comparison with same period last season there is much less ice in all the lakes this year, and it is in much softer condition and more broken up. The present indications are that the ice at the Straits will break up between April 5th and 10th, and the St. Mary's river can be opened by April 1st, if the present warm weather continues.

The usual details follow:

LAKE SUPERIOR.

Duluth—Harbor covered with 14 inch ice, but some open water on Duluth side; ice pack about mile wide continues along Minnesota Point, closing entrances to both harbors.

Washburn—Harbor ice 14 inches, and wasting away rapidly.

Ashland—Harbor ice 13 inches, and is badly honeycombed.

Houghton—No ice along the western and northern shore of Keweenaw Point; in Portage Lake ice is 12 inches thick, but the lake is open opposite Houghton; solid ice averages only three inches.

Marquette—No ice visible in the lake, although northerly winds have prevailed during the week; navigation opened on Friday.

Whitefish Point (20th)—Bay filled with floating ice as far as can be seen from the tower; also to the northward; ice badly broken up.

Sault Ste. Marie—Ice in Mud Lake and Hay Lake unsafe for pedestrians; open water half mile up from Pipe Island and open from Point aux Pins to upper end of Hay Lake; ice above Point aux Pins broken and offers but slight resistance to tug. Tug Philadelphia went up river on the 23rd, about one and a half miles above Bay Mills; ice very rotten and offered little opposition.

LAKE MICHIGAN..

Escanaba—Harbor ice ranges from 8 to 15 inches, and is badly honeycombed; it is melting slowly on account of cold nights; open water south of Peninsular Point; strong wind would open up the ice.

Menominee—Ice in bay broken up on the 16th; some still in the bay; harbor ice intact but rotten.

Green Bay—No ice in river; ice wearing away rapidly in the bay; a southeast wind would move it out.

There is no ice reported from any station on the west shore of the lake; there is some field ice along the east shore from South Haven northward to Ludington, but the ice is well broken up and offers no obstruction to navigation.

Mackinaw—Freezing weather holding the ice stationary; no change during the past week; must have warmer weather or strong wind to move ice out.

LAKE HURON.

Detour (20)—Cold snap of past few days covered harbor with about one inch of ice, extending from Pipe Island to Frying Pan Island; strong wind will break it up; river ice very poor, averaging about 10 inches.

Alpena—Steamer Alaska left for Toledo on the 21st, opening navigation here; ice still in the northeast corner of bay, but way to the lake is open; no ice out in the lake.

East Tawas—The ice went out of the harbor on the 19th and none to interfere with navigation.

Point aux Barques—No ice visible during the week.

Harbor Beach—No ice in harbor or lake.

Port Huron—Northerly winds have brought down the broken ice fields and this ice has passed down the river; very little ice running since the 19th, and none to interfere with navigation; steamer Alaska passed down at 5:00 a. m., being first passage this season.

LAKE ST. CLAIR AND DETROIT RIVER.

The ice was running from the lake until Wednesday, since that time the lake is free of ice and none in the river.

Star Line steamer Arundel made a trip to Algonac on the 23rd, and made the regular run on the 24th.

LAKE ERIE.

There is no ice reported over the western portion of the lake, from Toledo east to Ashtabula.

Cleveland—No ice in the harbor or lake.

Ashtabula—Some floating fields of ice to the northward and eastward; very much broken up.

Conneaut Harbor—Ice blown to this shore; no water in sight; navigation opened on the 22nd by steamer Shenango No. 1 clearing for Rondeau.

Erie—No ice in the harbor; ice fields about one-half mile from shore and extending out as far as the eye can reach, moving with the wind.

Buffalo—Ice in broken up fields as far as the eye can reach, and extending from shore to shore; ice in practically same position as last week.

LAKE ONTARIO.

North Fair Haven—Harbor practically free of ice; none in the lake.

Oswego—No ice in harbor or lake during the week; conditions favorable for opening navigation; no move has been made yet.

Sacket's Harbor—Ice in harbor wasting rapidly; in the lake it is broken up and rapidly wearing away; it extends out about 4 miles.

Cape Vincent—River outside of breakwater clear of ice; heavy wind will take it all out.

Ogdensburg—Very little ice in the lower harbor; river clear as far as can be seen.

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The friends of Capt. H. W. Bogart, of Watertown, who has sailed the lakes for over fifty years, has been wrecked several times, rescued many perishing sailors and never lost a man, have urged him to write his experiences in a narrative form and publish them as the "Log of a Lake Captain," after the manner of Admiral Evans. On one occasion the captain was wrecked on a shore skirting the wilds of Northern Michigan. With the ship's compass the party started towards civilization in snow sixty-one inches deep. When the provisions were getting dangerously low, a black bear was killed with poles and a sailor's knife and the party was regaled on roast bear meat without seasoning. Some of the crew were badly frostbitten, but suffered no lasting injury. This and similar accounts of shipwreck and rescue, incidents humorous and pathetic, the story incidentally developing the progress of navigation, would make a work that would certainly be of interest to lake dwellers all the way from Chicago and Duluth to Ogdensburg.

## SAILOR'S BIBLE.

A sailor of the navy, charged with playing cards during the chapel service, was ushered before the magistrate of Calcutta, India.

"What have you to say for yourself, sailor?" asked the magistrate with a frown.

"I have much to say for myself, your honor," said the sailor.

"If you haven't," said the judge, "I'll punish you as man was never punished before."

"Your honor," said the sailor, "if you will allow me, I will soon show you that my intentions were honest and pure.

"While out on the last cruise, through the treachery of a comrade, my prayer book, the gift of a dying mother, was thrown overboard. I turned away from the cowardly ruffian, overcome with grief, unable to resent the unkind act. I went to the forecastle, to unburden my heart with prayer. Passing the mess table, I saw a deck of cards scattered upon its surface.

"I saw the ace, and it told me there is but one God.

"The deuce told me of the Father and Son.

"The three-spot told me ot the Father, the Son and the Holy Ghost.

"The four-spot told me of the four evangelists, Mark, Matthew, Luke and John.

"The five-spot told me of the five wise virgins that trimmed their lamps and were saved—there were ten, and five were foolish.

"The six-spot told me that God made the world in six days.

"The seven-spot told me on the seventh day He rested from all of His labors.

The eight-spot told me of the eight righteous people, Noah and his wife, his three sons and their wives.

"The nine-spot told me of the nine lepers cleansed by our Savior; there were ten and one was grateful.

"The ten-spot told me of the ten commandments given to Moses on Mount Sinai.

"The king told me that there is but one King, the Almighty God.

"The queen told me of Queen Sheba, the wise woman of the East, equally as wise a woman as Solomon was a man. She visited Solomon, taking with her six boys and six girls, dressed in girl's clothing, and asked Solomon to tell which was which. Solomon made the girls wash their arms to the elbow, and the boys wash their hands to the wrist; in that manner he was able to tell which was which.

"The jack told me of John the Baptist going into the wilderness, preaching the word of God.

"There are 365 days in the year and 365 spots on the cards.

"There are 52 cards in the deck and 52 weeks in the year.

"There are 12 picture cards in the pack and 12 months in the year.

"There are four seasons in a year and four suits of cards.

"There are thirteen weeks in a season and thirteen tricks in a suit.

"So your honor, a deck of cards served me the same purpose as a Bible, prayer book, or an almanac would."

The sailor was discharged.

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The champion cup defender Columbia, which successfully defeated Sir Thomas Lipton's Shamrock, for the America's cup, will race abroad next season. That announcement was made by J. Pierpont Morgan, this week, after Prince Henry's visit to the New York Yacht Club. Mr. Morgan was talking to Admiral Baudissin and one or two of the Prince's party when he suddenly remarked that he would put the Columbia in commission and send her to Europe and race her against anything afloat, boat for boat. When Morgan's announcement was repeated to the club members there was a large cheer. Boat for boat conditions means that all questions of class are waived, so that the Meteor, the Kaiser's new yacht, will be able to meet the Columbia.

## NOTICE TO MARINERS.

UNITED STATES OF AMERICA—NORTHERN LAKES AND RIVERS.—NEW YORK.

TREASURY DEPARTMENT,
OFFICE OF THE LIGHT-HOUSE BOARD,
WASHINGTON, D. C., March 18, 1902.

Seneca Shoal Gas Buoy.—Notice is hereby given that on the opening of navigation, 1902, a gas buoy, painted black and showing a fixed white light during periods of 10 seconds separated by eclipses of 10 seconds, will be established in place of the black, 30-foot, iron spar buoy now marking Seneca Shoal, 6 3-16 statute miles S. by W. ½ W. (true) from Buffalo breakwater north end light-house, easterly end of Lake Erie.

By order of the Light-House Board.

N. H. FARQUHAR,
Rear-Admiral, U. S. Navy, Chairman.

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UNITED STATES OF AMERICA—NORTHERN LAKES AND RIVERS—NEW YORK, PENNSYLVANIA, OHIO, AND MICHIGAN.

TREASURY DEPARTMENT,
OFFICE OF THE LIGHT-BOARD,
WASHINGTON, D. C., March 21, 1902.

TENTH LIGHT-HOUSE DISTRICT GAS BUOY.

Notice is hereby given that on the opening of navigation, 1902, each of the following named buoys, heretofore showing a fixed white light, will be changed to show a fixed white light during periods of 10 seconds separated by eclipses of 10 seconds:

ST. LAWRENCE RIVER.

Ogdensburg Western Entrance Gas Buoy, No. 2.
Bay State Shoal Gas Buoy, No. 5.
Empire Shoal Gas Buoy, No. 4.
Chapman Shoal Gas Buoy, No. 12.

LAKE ONTARIO.

Galloo Island Shoal Gas Buoy, No. 1.

LAKE ERIE.

Erie Harbor Outer Gas Buoy, No. 2.
Erie Harbor Inner Gas Buoy, No. 8.
Gull Island Shoal Gas Buoy, No. 3.
Starve Island Reef Gas Buoy, No. 4.
Peach Orchard Point Gas Buoy.
Maumee Straight Channel Inner Gas Buoy, No. 34.

DETROIT RIVER.

Ballard Reef Channel South Gas Buoy, No. 2.
Ballard Reef Channel Middle Gas Buoy, No. 4.
Ballard Reef Channel North Gas Buoy, No. 6.

By Order of the Light-House Board.

N. H. FARQUHAR,
Rear-Admiral, U. S. Navy, Chairman.

## COST OF ORE DISCHARGING

The longshoremen and the dock managers are having a great deal of trouble in getting together. The dock managers are refusing to consider the longshoremen's requests until they present a more moderate demand. In this the dock men are not only backed up, but are being urged on by the vessel owners. Last year the longshoremen obtained thirteen cents a ton for unloading ore. This year they have asked sixteen cents. The dock managers usually assess six cents a ton upon the vesselmen in addition to what the longshoremen get. This addition is to cover the cost of maintaining the dock and to provide profits. Last year the total charge upon the vessels for unloading ore was nineteen cents a ton. If the increase is granted to the longshoremen it will mean that the vessel owners will be assessed twenty-two cents a ton. With the chance of lower freights staring them in the face, the vessel owners are fighting the extra charges. They are talking of arranging some plan whereby they will have a word to say as to the price paid to the longshoremen. They consider that the present situation is the equivalent of two men agreeing among themselves what one man is word to say as to the amount. Demands for representa- to receive, while the third man pays the bills without a tion on the committee of dock managers which arranges the rates was talked of yesterday.

The longshoremen have been working twelve hours a day. This year they have insisted that ten hours be a day's work. In this the vessel men, to a certain extent, are with them. They appreciate that with the shorter day's work and the additional charges for overtime it is going to be expensive to unload a big boat this year, but the most of them insist that it is only humane that the men should work ten hours a day and no more. They say that the severity of the labor in the holds of the vessels shoveling ore is such that no man ought to be kept there more than ten hours. Carrying out the idea they insist that in case where the docks are crowded, and it is desirable to move the ore rapidly, the dock companies ought to have day and night gangs, and thus do away with the possibilities of overtime.

The feature that is most alarming to the vessel owner is the cost of handling the ore this year as against the possibility of a reduction of freight rates, and many of them insist that it is bringing the boats back to a sixty-five cent basis. Whatever else the demand of the longshoremen has done, it has caused the vessel owners to demand a better rate of freight than has heretofore seemed possible. It would not now, in the light of events of the past two days, be at all remarkable if the vesselmen stand together and tie their boats to the docks until the first of May, or later.

## COAST SEAMEN'S JOURNAL.

This is one of the ablest labor publications in America, controlled by the seamen, and for the seamen, edited and managed by seamen; largely responsible for the unification of the seamen from coast to coast, its influence extends over a larger territory than any other paper of its class, advising the seamen what course of life to pursue to obtain satisfactory results.

It is fortunate that men of noble thought were inspired by the throbbing of truthful hearts to create a mouthpiece to defend the seamen. As a beacon of enlightenment, it warns the seamen of the cunning devices practiced upon the wage-earner for gain. The powerful glare of its searchlight has abolished many of the wrongs inflicted upon the wage-workers of the sea, reducing the enormous profits of the crimp, ruining the occupation of the land-sharks and forcing them to seek other fields than that of the seagoing.

This journal fearlessly advocates that the seaman should be protected in his efforts to sustain soul and body. The constancy and national influence of the journal figures largely in the molding of favorable congressional opinion in the improvement of marine laws, enforcement of which enables the mariner to breath more freely and live a more satisfactory life than that of olden times.

Its tireless energy and constant devotion is sufficient evidence to convince the skeptic that the Journal is a valuable and useful organ for human liberty.

The seamen of both coasts and the lakes can well be proud of the distinction given their organization and their craft through the journalistic ability found within their ranks; it denotes the character and confronts the world with the everlasting truth that genius will rise even from the gloomy depths of the forecastle.


## ELEVATOR & BARGES FOR SALE.

At Prescott, Ont., on St. Lawrence River, elevator for one million bushels capacity, together with fleet of 8 steel barges and steam tug. Will be sold by public auction under direction of the Court at Prescott, on April 3rd, at 11:30 A. M.

Full particulars on application to Messrs. MacCraken, Henderson & McDougal, Solicitors, Ottawa; Messrs. Leitch, Pringle & Cameron, Solicitors, Cornwall; or Wm. Dunn & Co., 47 Board of Trade, Chicago.


## FIRE DANGERS FROM ELECTRIC LIGHTS.

There is a common belief that electric incandescent lamps give out very little heat, and that, therefore, fire danger from them is practically non-existent. Hence it is that such lamps are frequently found disposes with much unconscious carelessness in the neighborhood of combustible materials, in shop windows, for example, for decorative effect, and the wonder is that fire losses from such use of the lamps are not more widespread.

Many experiments have been made and recorded to show how real these lamp fire risks are, and reference to some of them will well bear repitition as possibly useful in emphasizing the need of greater caution in securing illuminatng effects.

In one case where a lighted lamp rested against a vertically placed white pine board a spot, about an inch in diameter, and of a light brown color, appeared after about four hours. In the case of a similarly disposed strip of well-seasoned, varnished oak, the varnish became blistered in three minutes and blackened in about fifteen. The wood had the appearance of being charred at and near the point of contact with the lamp, but was not ignited.

With a lamp incased in two thicknesses of muslin, the latter became scorched in one minute, in three gave off smoke, and at the end of six minutes, when the muslin cover was removed from the lamp and fresh air reached its interior, it burst into flames. Where a lamp was laid on inflammable material, the effect seemed to be more rapid, due, probably to the pressure exerted by the weight of the lamp.

A newspaper was, in this way, carbonized in three minutes and ignited in forty-five. The lamps used were of sixteen candle-power. In one instance, cited recently, it was found that on immersing a 16-candle-power lamp in half a pint of water, the latter boiled within an hour. Again, with a lamp buried in cotton-wool, the wool soon began to scorch and ultimately burst into flame. A lamp in contact with celluloid, fired it in less than five minutes.

All these trials indicate, in a fairly conclusive way, what may be expected under certain conditions from a popularly supposed absolutely safe form of light.

Intimately associated with the electric incandescent lamp is the flexible cord connection, and in this we have a probably even more pronounced form of fire risk. In two cases recorded some time ago, short-circuits developed in cords supporting lamps not turned on, and while the current was almost instantly cut off by the blowing of fuses, the momentary arcs were sufficient to set fire to the cords, which were oily and dirty with lint, being in a cotton mill. In both cases strands of the fine wire had probably broken and pushed their sharp ends through the insulation, causing the trouble, and both occurrences showed that however quickly current may be cut off by properly acting fuses, the heat of the arc produced is sufficient to make the cords burn.—From Cassier's Magazine for April.

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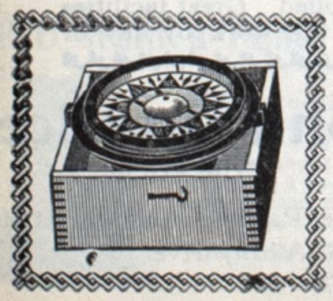

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THE BUFFALO FEED WATER HEATER AND PURIFIER.

NAMES OF STEAMERS ON THE LAKES USING THE BUFFALO FEED WATER HEATER AND PURIFIER:

Zenith Transit Co.'s steamers Empire City, Crescent City, Zenith City, Superior City, Queen City, Pennsylvania and John W. Gates.

The Republic Iron Co 's steamers America, Brazil, Thomas Maytham and Chili.

Mitchell Transportation Co.'s steamer Hendrick S. Holden.

Minnesota Iron Co.'s steamer Presque Isle.

American Steel Barge Co.'s steamer Alex. McDougall.

Lake Michigan & Lake Superior Transportation Co.'s steamer Manitou.

Bessemer Steamship Co.'s steamers S. F. B. Morse and Douglas Houghton.

American Transportation Co.'s steamers John Harper and Alex. Nimick.

Red Star Line's steamers Robert Mills and Wyoming.

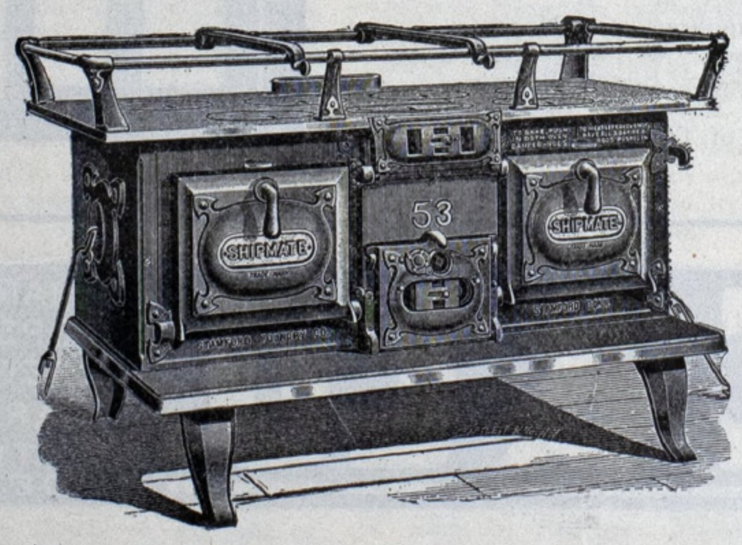
Wilson Transit Line's steamers W. D. Rees and Andrew Carnegie.

And the steamer William R. Linn.

## SHIPMATE RANGES.

You have doubtless experienced the satisfaction which comes of having the best there is — that which causes no regrets and needs no excuses.

Owning a Shipmate produces that same feeling.




The Tinnerman Steel Range Co., 797-803 Lorain Street, Cleveland, have a full assortment of these ranges, and can fill orders for any size.

THE STAMFORD FOUNDRY COMPANY,
STAMFORD, CONN.

Established 1830.

# M. A. HANNA & CO.

COAL, IRON ORE AND PIG IRON.

## Steamboat Fuel at Ashtabula.

Large Supplies of Best Quality.

Fuel scow with elevators and discharging spouts. Storage of 650 tons. Discharges 150 tons an hour into steamers while unloading cargo.

LIGHTER carrying different grades at all times.

MINERS AND SHIPPERS.

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# COALS

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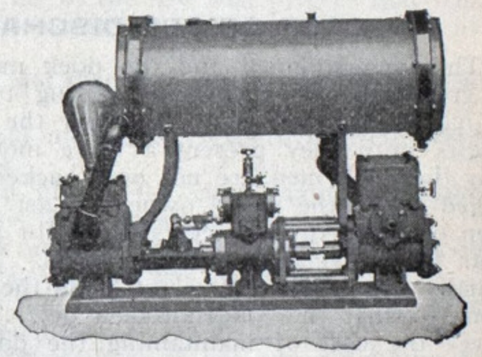

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## PORT HURON.

*Special Correspondence to The Marine Record:*

James Oag is in Chicago fitting out the steamer Osceola.

The steamer Manistique is in drydock undergoing repairs.

Wm. B. Pilkey has left for Chicago to fit out the steamer Brazil.

The steamer Douglass is being cut down into a barge at Marine City.

The steamer Manistique is receiving repairs at the Wolverine drydock

Edward Moore left on Sunday for Detroit, to fit out the tug Kessel.

Lew Annis left on Sunday for Chicago where he will fit out the steamer Thomas Maytham.

The Cleveland vesselmen and members of the Firemen's, Oilers' and Water Tenders' union have reached an agreement regarding wages.

The state tax commission calls attention to the fact that vessel property is the same as any other property and must be assessed at cash value.

The Dunkley Transportation Co. and the Williams Co. have consolidated under the name of the Dunkley-Williams Co., with a capital stock of $30,000.

A large number of vessels lying at this port are receiving slight repairs. It is said that the greater portion of them will be painted before the opening of navigation.

The Kendall marine reporting office will open about the first of April. Jas. Connors, who had charge of the office in former years, will again take charge this season.

A Cleveland vessel man at the Harrington on Wednesday night said: "Port Huron captains sail some of the best boats on the lakes and the enginers are as good as any who follow the business."

Vessel Inspectors Van Liew and Stewart are rushed with work these days. The opening of navigation is in sight, yet a number have failed to take the examination. It may call for the inspectors working nights.

It is expected that the Star line steamer Idlewild will bring a large amount of freight to Port Huron on its first trip on Sunday next. Already there has begun to accumulate at the company's storehouse in this city shipments to down the river ports.

The steel lumber-carrying steamer to be built by the Columbia Iron works, at St. Clair, Mich., is for John J. Boland and other Buffalo and Chicago capitalists. She is to be ready for business by October 1. Her capacity will be about 1,200,000 feet, and she will tow a barge. Salt-water appliances are to be added to the machinery department.

From a letter received in this city to-day by a well known tugman, it is evident that the tug trust is going to have a strong proposition to go up against. The letter asks what tugs can be furnished for Chicago river and harbor and is from the local lumber dealers of Chicago, who have formed an association. They will guarantee the tugmen all their business and if necessary will organize a company to help them purchase tugs to do the towing. The tug trust last year, it is claimed, charged exorbitant rates, and before a small lumber schooner could get in or out of the Chicago river, the towing bill ran over $100, which ate up considerable of the profits. This year the tug trust intends to raise its rates considerably, and the movement of the Chicago lumbermen, while being conducted on the quiet, shows that they mean business and will fight the trust. Other information received from Cleveland and Toledo, indicate that an independent movement is on to fight the tug trust to a finish.

W. I. Howard and Frank Webber, representatives of the International Lake Seamen's Union, addressed the seamen and longshoremen at Buckeridge's hall on Friday evening. The attendance was not large. John A. Barron acted as chairman of the meeting. The purpose of the meeting was to encourage the seamen of this city to organize and join the union. Mr. Webber was the first speaker and explained the working condition of the order and its financial standing. Mr. Howard was the next speaker and in part said: "The seamen should organize in this city and not be the slaves of scheming manipulators. Unions can get along without capital, but the capitalist would die without the working man. Therefore organize and be independent. Thirty-nine years ago a number of seamen tried to organize in the city of Chicago, but were laughed at. The seamen should join the union on account of its financial as well as its other conditions. The seamen should be as strong as the longshoremen. Every member of the union has a vote and no one man rules. There are twelve branches of the seamen's union on the chain of lakes, and meetings are held on every Monday evening. No matter what port the seaman is at he will be admitted to these meetings and have a vote and be informed what has been done during the past week. Every month the financial report is issued." Messrs. Webber and Howard are at present making a tour of the lakes, and hope to establish a seamen's union in every city. These gentlemen will make another visit to this city on April 9th.


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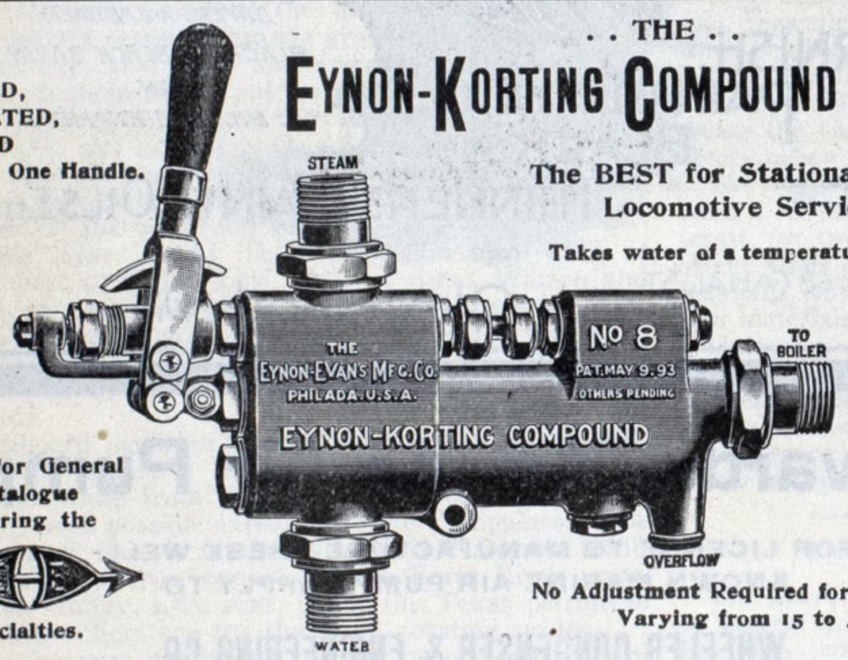


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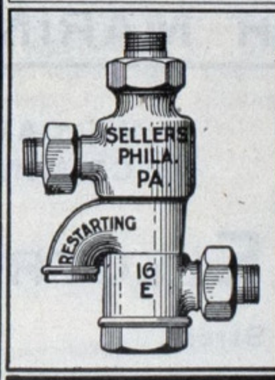


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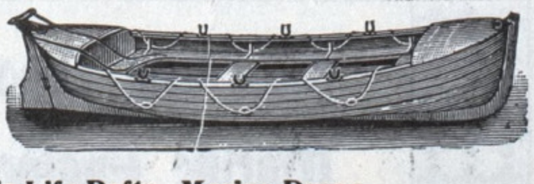

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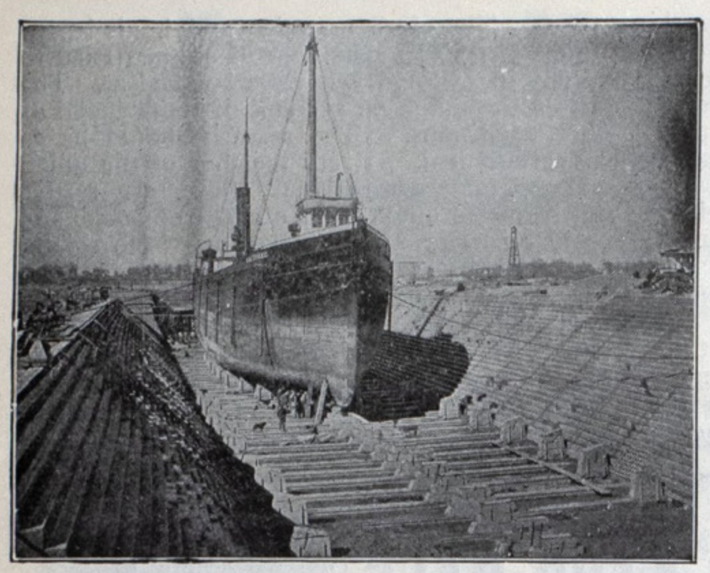

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